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VOLTA REVIEW

VOL. XVIII APRIL, 1916 No. 4

The Institution versus the Day School

Fundamentals in Teaching the Deaf to Speak

Auto-Education in the Primary Schools

Corrective Speech Work in Public Schools

The War Against Faulty Speech

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VOL. XVIII APRIL, 1916 No. 4

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FITTING THE INDIVIDUAL

BY JERRY ALBERT PIERCE

A COMPARATIVELY modern disciple of Æsop has a fable of a cow elephant who stepped on and killed a mother partridge. The kind-hearted elephant's eyes filled with tears when she saw near by the partridge's nest and in it some newly hatched and helpless young. The elephant said to herself, "I killed this mother bird through an accident, yet it was my fault. All I can do now is to take the place of a mother to these poor little fledglings." Thereupon, imitating the bird, she sat down upon them.

This seems to be, in general, the implied mental attitude of the State. Through causes, preventable or otherwise, she places certain children in a defenseless position and, feeling the responsibility, "sits down" upon them with an institution.

It is rather difficult to specifically attack the institutional system, founded as it is upon philanthropy and a genuine desire on the part of the State and other organized bodies to alleviate the needs of an endemic part of the population. Criticism is rendered still more difficult when it is remembered that there are almost as many varieties of institutions as there are of the human race. An institution may educate and feed its inmates; it may be a pride to the State in which it is located; it may be a model of architecture, of management, of economy, of efficiency, or of any of the other virtues; but the fact remains that sociologists and men who have really studied the institution and its finished product agree unanimously that it is a doubtful success—a relic of medieval times—an offspring of the English charity school and the possessor of various faults and iniquities.

Colorado, for instance, has one that is a model in its way. It is, possibly, at the top of its class. Some of the other States have "institutions" that would give a Charles Dickens anticipative quivers whenever he held a pencil in his hand. Between them are fairly good ones and fairly bad ones—parochial ones, semi-state and semi-private ones, colored ones, those for very little children, those for the rich, who do not have to call on the State for help, and those for all classes of humanity, mixed heterogeneously together, without respect for color, age, health, or moral status. The State institutions are mostly of the latter type, although some have of late tried conscientiously to eliminate the unfit and separate the babies from those who are almost adults.

But the fact remains that institutions, no matter whether they be supported by public taxation, the tithes of churches, or are managed privately under the name of "home schools," are institutions, and as such should not be too openly condoned. One of the most prominent frowners is Prof. Charles Richmond Henderson, of the University of Chicago. He says quite plainly that:

"It is admitted that there is a certain limited field of usefulness for institutions and for permanent buildings, even when we exclude all feeble, sickly, crippled, and otherwise abnormal children. But such persons (inmates or students) should not be kept in large numbers under one management. Diseases, especially among quite young children, are likely to enter and spread rapidly where there is a throng and a multitude, and sickness is more fatal. A certain military

precision and strictness of order must be maintained where numbers are large, and movements very artificial and unnatural to the young must be prematurely forced upon them. Individual self-direction, the essential condition of later success, has little exercise; the child is made a part of a machine, and his faculties of invention and initiation are weakened. He becomes accustomed to a mode of life unlike that of the normal family, and when he goes out to care for himself he has acquired none of those habits of thought and feeling which equip one for this competitive world, where personal courage is so essential to success. The very fact, so often quoted by friends of this system, that the children like this hothouse system is an argument against it, for it shows that the unsocial habits have cast their claims about the very soul. The worst thing ever said of slavery was that the slave cared for nothing better. . . . There can be no mothering, no caresses, no marks of personal affection and attention, which are so necessary in developing the moral instincts and affection. The body is fed but the soul is starved. . . . This is not real life; it is a merely artificial mode of existence. . . . The cost of institutions is relatively large. From $300 to $800 must be invested for each child in buildings and from $150 to $300 a year expense of maintenance for each person. . . . Boards of management love to drive past the massive edifices and 'point with pride' to the lofty buildings, the ample grounds, the long rows of painfully demure and subdued children—the cloud of witnesses to their bounty."

I doubt if I have ever read a more comprehensive review of institutional misdemeanors in fewer words than these of Professor Henderson. He does not seem to be a prejudiced individual; he treats his subject calmly and judiciously and he voices the sentiments of a standardized group of sociologists. Of day schools he says:

"While there are great difficulties in the way of this plan, especially outside of cities, it is strongly urged on several grounds. It is thought that young children suffer from being separated very long from normal family life and from the companionship of those who are most nearly related to them; that they lose the training of ordinary experience in adapting themselves to the conditions of life in a competitive community, where they must take their part and place in mature years; that they are more likely to marry defectives like themselves if brought up among them, and so increase the difficulties of living and the danger of propagating a tendency to defect. While State institutions seem to be necessary, especially for children from scattered rural populations, all competent authorities agree that no effort should be spared to secure, in the highest possible degree, normal domestic relations for every human being, with a minimum of institutional life."

I have quoted extensively from Professor Henderson. I have given, word for word, his arguments *against* institutions and *for* day schools. The fact that he has no arguments *for* institutions and *against* day schools seems to prove conclusively that the attitude of sociologists who are in no way connected with day schools or institutions is strongly for the former. In this article I shall retain this proposition; I shall mention none of the pleas advanced either by teachers *in* day schools or *in* institutions and shall try to remain neutral as far as the situation seems to demand. Professor Henderson is authoritative; his reputation is national, and his volume, *"Defectives, Dependents, and Delinquents,"* is accepted as a textbook in colleges and universities of the highest standing.

The institution, then, is productive of harm through the commingling of too many children for too long a time, and inhibits those necessary elements of a well-rounded life which are to be gained in no place but the home. The day school is vastly better, but is limited in scope except in large cities. The population is gradually grouping itself into cities, and the pro rata of deafness varies so little that eventually the day school should become paramount over the institution.

Although the issue is not often publicly raised, one of the chief arguments against the day school by supporters of institutions is that the oral system has one of its greatest strongholds therein. There were in 1914 sixty-five day schools in this country, of which all but two were oral (Best). To those of us who believe in the oral method to the exclusion of all others, this is the best possible argument in the favor of day schools; but the mere fact that this condition exists makes it more difficult to bring about a revolutionary change in the present method of organizing schools. In the sixty-five State institutions all but fifteen are under combined instruction. The buildings, plants, and grounds of these sixty-five institutions represent a cost to the various States of $16,856,338. It is absolutely useless to believe that even the most extravagant or transilient State legislature would urge the abandoning of property of this value in order to try out another system, even though that system would, in the course of a very few years, save the State the amount of money invested in the institution. Much as reformers would like to make changes, and much as they know the ultimate value of these changes, there simply must be taken into consideration: (1) The opposition of combined supporters, (2) tradition, (3) indifference on the part of the general public, (4) politics, and (5) the prevalence of the *laissez faire* attitude among those who have the authority to create innovations.

In the thickly populated States in the East the public day school is eminently practicable. In the West, and in those other sections of the country where the population is scattered in small towns or on the farms, it does not seem possible to do much more than establish day schools in those cities where ten or more deaf children are found. Judged from a strictly statistical point of view, however, such a thing is really not impossible.

Mr. Best estimates that the average cost of each child to the State when confined in institutions is $277 a year and the average cost per child in the day

MR. JERRY ALBERT PIERCE

school $120 a year. The average salary of a school teacher is $600 for the school year. Thus even the enrollment of three deaf children under one teacher would lessen the prime cost to a State to the extent of nearly $50 per year per pupil, for no special equipment would be needed other than that used for the hearing. The presence of day schools in a town where ten or more students lived would still decrease this relative expense by lessening the general average of cost in classes where but a few pupils were enrolled. The State of Colorado, for instance, had, at the printing of the last report to the Board of Trustees, 158 deaf pupils in its institution. Superintendent Argo estimates that the cost to the State per pupil per year was $400, or $63,200.

Using Mr. Best's estimate of a cost of $120 per year per student in day schools, the hypothetical elimination of the Colorado State School and the substitution of

day classes would cost the State $18,960 and save it $44,240. Of course, this admeasured saving is greatly in excess of what the actual figures would show; but it is certain that there would be a decrease in the necessary expenditures for the education of the deaf in Colorado under this system or a modification of it.

Continuing the use of the State of Colorado as an example, we find that of the 158 deaf students in the institution eighty-three, or over one-half, are resident in the three largest cities of the State—Denver, Pueblo, and Colorado Springs. Denver has forty from the city proper and six from near-by suburbs connected with the city by street-cars. Pueblo has thirteen. Colorado Springs has twenty-four. Crested Butte, a small town in the southwestern part of the State, sends six, and Cañon City, a moderately large community, is sponsor for four. No other towns or cities send more than two. The case of Crested Butte is peculiar, as four of the six are members of one family.

If day schools were established in these five cities and towns, their maintenance would cost $11,160 per year. If each of the remaining children were put in a day class of its own, at Mr. Best's estimated cost, the total saving to the State, even under these conditions, would be $13,040. This, however, not being actually possible, and the cost per pupil in isolated communities being placed at $600 per year, the total cost would be $66,960—a matter of only $3,760.00 more than the present expense of educating and boarding 158 children in the institution.

This is the situation in Colorado. The State is growing rapidly. The five publicly supported schools of higher learning and the various penal and charitable institutions are constantly fighting for appropriations for new buildings and equipment. Even now there is a tendency among educators of the deaf to provide separate quarters for very young children. This has already reached the State of Colorado to a certain degree, but there is still much room for improvement. There is a need not only to keep young children away from the older ones, but to eventually provide segregation of the most drastic form of the orally trained from those who use signs and finger spelling wholly or in part. These changes will require new buildings and an increased maintenance charge.

I am not so radical as Professor Henderson. I believe that institutions have a place in the educational system. I do not believe that the day school would be practicable in communities where only one or two children could be drawn upon as students. I am a warm admirer of the men and women who have made the Colorado State School for the Deaf and Blind what it now is. I am not attacking this school or institutions of its type, but I do believe that its field of usefulness could be made much broader than it now is, and without expense to the State financially or to the people, in educational results. I am using the Colorado School as an example, for figures are necessary, and because I am well acquainted with the school, with the State, and with the educational system in the State. What I am illustrating in the case of Colorado will apply with equal force to any other State in the Union. In Professor Henderson's theories I have confidence, but from a practical point of view I believe they are open to certain objections.

The chief of these objections is that of unachievability—the impossibility of creating any condition that will do away with institutions in the entirety. With supporters of the combined system, I believe that deaf children are not created equally from a mental point of view. I cannot urge the abolition of schools for special classes of people simply because a few members of each class have competed on equal terms with the normal. There must be some place to educate those children who have not the mental force, the initiative, the determination, and the desire to remove themselves from their type. There must be some place to teach trades to certain children who could not under any circumstances find suitable occupations if left to their own devices. Professor Henderson is correct in his

surmises that institutions inhibit initiative, rob the children of home surroundings, and create conditions that are antisocial; but he fails utterly to consider the abnormal members of an abnormal class or to present a substitute except in unusual and idealistic conditions.

Among deaf children we have certain groups to consider. There are: (1) The congenital, or early adolescent deaf, who have been educated under the combined system—a system which fails as utterly as did the purely manual; (2) the children who became deaf after speech was acquired, and who either early leave the schools that teach them signs, or who stay in an atmosphere that is distasteful or harmful to them; (3) children of either early or late adolescence, who are educated in purely oral schools and who accomplish all that their teachers most ardently expect of them, and (4) those who in oral schools are not mentally or temperamentally fitted to bear the burdens that come with certainty to those who are fighting to obliterate the effects of their deafness. There is still a smaller class which is rapidly becoming one that must be considered more fully—that in which the children are received in schools for the deaf at the age of two or three and sent to public schools with the hearing at the age of eight. The trial court of *The Institution vs. The Day School* must consider all these.

For these various groups of children there are, roughly, three types of schools—the institution, the day school, and the public school intended primarily for the hearing. All members of these groups of children could attend institutions with more or less success; a lesser number have at their disposal the day school, but only a comparatively small percentage find the "hearing" school open to them. This is because the institutions were organized for their particular benefit and to fit their supposed characteristics; the day schools also were designed for them, but the lack of density in the population of a given community precludes the establishment of a sufficient number of schools of this type to accommodate the number that the institutions are capable of receiving. The third opening, the ordinary public school, is not open at all except to those who have been trained orally and who have those characteristics which render it possible for deaf children to take their places among the hearing.

Fixed rules cannot be devised to fit all classes of people. A certain laxity must prevail; a certain amount of "give and take" must be acknowledged, and the supporters of the various methods of teaching the deaf should coöperate to produce a system relatively more satisfactory. In brief, the institution, the public day school for the deaf, and the public school for the hearing should combine to conform to the various types of children presented to them.

The composite deaf child is fortunately in the majority. The one who is neither extremely combative nor supersensitive, the one whose mental powers are remarkable neither for greatness nor marked inferiority, is the one with whom we come most frequently in contact. The ideal system should accept as its standardize case the child who can be taught to speak and to read speech and who could eventually make some progress when thrown among hearing children. A relative degree of latitude should be allowed, so that the system might, without disrupting established conditions, fit itself to children either slightly above or below this standard.

At the Colorado State School there are three other great divisions among the deaf children. There is the entering group—small children, who are potentially able to learn speech and speechreading. Then there is another class of older children who speak not at all, or so indistinctly that their speech has no practical value. Among these are the children who have been pronounced incapable of doing well under the oral system and who have been allowed to enter manual classes, and those who show the result of a few hours of oral instruction and a great many hours of commingling with schoolmates who use nothing but signs.

A very much smaller group consists of the adolescent deaf, who have had, perhaps, a few years in the public schools before they became deaf and who are standing at the junction of two roads leading to a life of oral speech or a reversion to deaf-mutism. Hardly any of them, possibly, ever attain the results that might be expected if there were rigid separation of the sign-users from the others.

This is the great fault of the Colorado State School for the Deaf and Blind in regard to oralism. It is a combined-system school, but it claims a warm affection for the oral system in those cases where "practicability can be proven." It gives good instruction in speech and speech-reading, but so far no measures have been taken to keep these orally trained children from using signs and finger spelling outside of the class-room. Indeed, such a thing is impossible for several reasons. More than one of the trade teachers are deaf-mutes; some of the monitors and other employees are deaf-mutes. There is only one dormitory for the older boys and one for the older girls. There is no such thing as a 12-foot fence, as was once suggested by a Southern educator, to keep the sign-users from contaminating the speech of those who are not supposed to use signs. Without some modification of the State's theories for the education of its deaf children, this will always exist.

And, existing, the State is paying out money for that which it does not receive. It is paying the salaries of teachers to implant speech and speech-reading into the younger children, when not 10 per cent of them even pretend to use speech and speech-reading in later years. For all practical purposes it might just as well revert to pure manualism and throw aside all claim of teaching speech "when practicable."

All State institutions provide board, lodging, and books free of charge. Some even include clothing. No public school for the normal that I have ever heard of does this. If such a thing were even suggested, a cry would arise that pauperism was being encouraged. It is this free food, free lodging, and free books that makes the difference between $120 and $400. To a community burdened with taxes, with other State schools needing appropriations, this should be one argument in favor of a partial elimination of the institution.

If, then, the deaf children living in Denver, Pueblo, and Colorado Springs were placed in day schools for the deaf, there would be room in the institution for eighty-three more children. Thus, as the State increased its population and an additional eighty-three deaf children demanded education, a place could be provided for them without the erection of additional buildings. In view of the ratio of the deaf to the general population, this would require a good many years. But, even without waiting for this eventuality, the severance of eighty-three deaf children from the institution would make it possible to bring about changes that are now hardly feasible. It would make conditions easier for the blind department; there would be a better opportunity to segregate those utterly divergent types of deaf children, and there could be a fairer test made of the "practicability" of pure oralism.

It is not necessary for mention to be made of the advantages of day schools in these three cities in respect to the re-creating of home ties, the founding of individuality, or of the result of deaf children in daily communication with the hearing. This is all axiomatic. The real effect would be in the construction of an entirely new system of education. Needless to say, it would be a system based upon oralism and the *gradual* elimination of the sign language and of finger spelling.

Briefly, the day classes in Denver, Pueblo, and Colorado Springs would admit from the very first only those children who had never before attended school. None of them would be in the possession of any knowledge of the sign language and there would be absolutely no excuse for their employment. The first classes, of course, would be small, but as the

years went on there would be larger enrollments. Beginning children from the smaller towns would, as usual, enter the institution; but the gradually decreasing enrollment in that institution would make it possible to segregate them from those who were being taught manually or from those who were being taught orally, but who still knew and used the sign language and finger spelling. Since the longest possible length of time that a child can remain in this school is fifteen years, within fifteen years, then, there would be no pupil familiar with the sign language. The education of the deaf would be on an entirely oral basis.

I have said in the previous paragraph that "as the years went on there would be larger enrollments." This is due to the fact that those who entered at the inaugural of the system would still be there during the years that other beginning children entered. There would finally come a time when the entering class, as well as the advanced classes at the institution, would come entirely from small towns and from farms and the others entirely from Denver, Pueblo, Colorado Springs, and those other towns that might in time show a need for day classes. Naturally, it would appear that the trade schools and the other advantages of the institution would be in the hands of those children from the rural districts, and that the benefits of the day school would accrue only to those from the larger towns and cities.

But this would not be the case. There would come into consideration the human element. There would come into prominence the necessity of the third integrant in the system—the public school for the hearing.

There would appear among these children—orally trained—both in the institution and in the day school, certain ones who showed the ability and the ambition to take their places among the hearing. These would enter the public school and would keep pace with their normal associates or, failing, drop back automatically into the school from which they came. Again, there would be certain ones from the day schools for the deaf who, it would be demonstrated, could do better work and make greater progress in institutional surroundings. Among these would be those who were so lacking in initiative that help would have to be given them not only in choosing a life work, but in learning it. Among them, also, would be those who needed the discipline which Professor Henderson calls "a certain military precision and strictness of order."

The courses of study would, of course, be arranged to parallel as nearly as possible those in the schools for the hearing. The whole system would necessarily be under the control of one body of managers or, at least, two boards intimately connected. There would be made legal provision for the entrance of deaf children into the public schools for the hearing, so that no obstacles might be set before these children. In fairness to the normal children involved, there would be further provision that no teacher should give undue attention to a deaf child in her class, and that if the child could not, after a fair trial, compete with more or less success in its new surroundings, it should be reported and remanded to the special class for the deaf from which it came. There should be some arrangement so that a child returned from the "hearing" school to the other might later on be given another chance, if it were demonstrated that the first failure was due to some remedial cause.

Indeed, a great many provisions would be required to fit certain cases. A child suddenly transplanted from the institution to the public school for the hearing would, in many instances, be so utterly lacking in knowledge of outside conditions that sheer fright would make it an apparent failure, until the child became accustomed to its surroundings. A child from the cities wherein day schools had been established might have such a home life that humanity would demand institutional surroundings for it. Another one from a farm or a rural district might be so well known among its own frineds and so respected for what it had done

while laboring under a handicap that the only place possible for it would be in the school where its brothers and sisters were. These examples are given only to show that a strict rigidity might prove the failure of the innovation, but that rules capable of covering all possible cases and having to do more with actual results than with theory would accomplish the desired result.

But it is not urged that there be no strict rigidity at all. The system would be one of economy, of educational attainment, and broadness of purpose. It would have to show results, and such results would obtain only where an immutable method ruled. The only laxity permissible would be that of allowing a child, whether in the institution, the day school, or the "hearing" school, to be transferred to that which would be of most benefit to him. The three divisions of the system should find in one of them the proper place for an individual and thus arrive at the results one would desire. It would fit the unusual child and the ordinary one alike.

To the casual student of school methods all this may seem complicated and confusing. In reality it is a simple combination of several well-recognized methods of teaching the deaf and it eliminates only one thing—manualism. On this account it would probably receive the condemnation of certain educators and possibly the unqualified support of others. It seems to me, after many years of thought on the subject, that the innovation, if adopted, might solve a hitherto perplexing problem and do much good. Its only claim to originality is the combining of the institution, the day school, and the "hearing" school to the extent that a child, unsuccessful in one, might be transferred to the place most suitable for it, and the giving of the elephant more than one way of showing her kindness of heart.

FUNDAMENTALS IN TEACHING THE DEAF TO SPEAK

BY JOHN DUTTON WRIGHT

IF ONE has attempted for five hours a day, at least five days a week, for 35 or 40 weeks each year, for 25 years, to teach deaf children to speak, one has been able to make a goodly number of mistakes.

If, during the same 25 years, there have passed before one hundreds of deaf children whom others have been previously teaching to speak, one has had the opportunity to see illustrated by the faults of speech of these children all one's own mistakes and a large number of others that one has not had the ingenuity to invent one's self.

Out of this varied assortment of errors on the part of the teacher, and resulting errors on the part of the child, it may be possible to select certain broad, underlying principles that should be either followed or shunned. While these principles may be called rudimentary, they are not always grasped by even the experienced teacher, or, if grasped, are not put into practise; and, just as it has helped me to dig them out from the mass of observed errors and to express one of them here, so it will not harm even the most experienced teacher to glance this over.

The old saying that "it is never too late to mend" may, perhaps, be true of the teacher, and it is certainly true of the pupil; but the process of mending in the case of the pupil is a slow and difficult one, and is only accomplished by "fasting and prayer" and the most faithful and determined effort—such effort as is not, by any means, universally obtainable from the pupil. If the necessity for such a long and difficult task of retracing steps and overcoming wrong habits could only be avoided in the beginning, it would be a thing "devoutly to be wished," since its accomplishment is often accompanied by most undevout thoughts on the part of both pupil and teacher.

EXAGGERATION

I think no other one word can sum up the causes of so much of what is wrong in the speech of the deaf, and I feel that it is the teacher who is primarily at fault.

Exaggeration of speech movements on the part of the teacher arises from the most laudable of motives, namely, the desire to make plain and evident to the pupil what the teacher thinks the pupil ought to know. But, unfortunately, the pupil does not stop with knowing, but goes on to *doing*. He imitates, and, in his own turn, *sometimes* further exaggerates the speech movements shown him on a large scale by his teacher, not grasping the fact that, in order to make plain to him the more or less hidden workings of the organs, the teacher has shown them on a scale "larger than life and twice as natural," and that it is necessary for him to see those workings, and then to reduce them to their proper, smaller proportions. The result is a breadth and activity of movement in the speech of the child, accompanied by muscular strains and contractions that are truly appalling.

Take as a single example the sound represented by the letter *l*. What yawning mouths and protuberant tongues we have all shuddered at sometimes when this sound was being uttered or taught.

A superintendent of a school for the deaf once told me that when he assumed the responsibility for a certain school he found most of the children making their *l's* with a generous portion of the tongue in contact with their upper lips. He made no comment, but set out on a still hunt for the source of this unfortunate habit. Going from school-room to school-room, he soon came upon an "articulation" teacher who, if she did not touch the tip of her left ear each time an *l* occurred in her speech to the children, came perilously near to it. Making opportunity to talk with her alone, he directed the conversation to the subject of making and teaching the sounds. "The formation of the English sounds," he said, "is purely an arbitrary matter. Consensus of opinion has agreed, unconsciously perhaps, to make them in certain ways, but custom has now so thoroughly fixed the methods of production that it is proper to say they cannot be correctly made in any other ways. The sound of *l*, for example," he continued, "might just as well have been made by applying the largest possible portion of the tongue to that portion of the cheek nearest the mouth. But universal agreement has decreed otherwise." He then went on to describe the method of production that, he stated, had been arbitrarily decided upon by the English-speaking race.

Now it is not possible to utter the sound of *l* in the easy and natural way that we utter it in conversation, and in which we should like to have our pupils utter it, and at the same time permit the pupil to *see* the *correct* position. The moment we attempt to *show* the pupils with our own tongues how to produce the sound of *l* we so hopelessly distort the position that if the child imitates it, as he surely will, he will make an *l* that ceases to be an English sound and become a gestural sign. He might just as well adopt the convention of laying his index finger upon his cheek each time an *l* is uttered, just as I have seen some deaf children invariably indicate an *n* by touching the nose.

Now the best teachers have worked out simple ways of conveying the required information and yet heading off the exaggeration that is so apt to accompany the efforts of the pupil.

One teacher of my acquaintance has been uniformly successful in getting her pupils to habitually form excellent *l's* free from exaggeration. She has found diagrams, drawings, and dissected models of very little real use for this purpose. Her method of procedure is usually something like this: She first directs the child's attention to her *slightly* parted lips and *still more slightly* parted teeth. This position the child observes in his own case in a hand glass. She then asks the child to open his mouth wide, and she passes the tip of the child's (freshly washed) finger softly around the inside of the upper teeth from about the third from the back on one side to the third

from the back on the other, after which she passes his finger along the edge of his tongue from the back of one side around the tip to the back of the other side. She then has him assume the position of parted lips and parted teeth previously shown, and tells him to allow his tongue to *rest softly* and *gently,* touching all those teeth that his finger has touched. She has a little electric lamp (an ordinary "buglight" will do nicely) that enables her to see between the slightly parted teeth whether the front part of the tongue is resting against the back of the upper front teeth. The correctness of the side positions she cannot see, but must judge of later by results.

Having obtained the proper relation of lips, teeth, and tongue, so far as she can see, she asks the child to breathe gently in and out through the mouth *without voice,* while the lips, teeth, and tongue remain quietly as directed. This, when gently done, will cause the child to slightly loosen the edges of the tongue to allow the breath to pass while the end of the tongue is in closer contact with the back of the upper front teeth. The passage of the breath produces a sensation of coolness in the cheeks and on the edges of the tongue, and the child's attention is directed to observe this coolness.

When the child has become able to maintain this position and continue this quiet mouth breathing for some time, she ventures to ask him to make a little easy sound with the outward flow of the breath. Sometimes this works havoc with the position of the organs, but he quickly learns to make a gentle sound while maintaining the positions. This sound tells the teacher whether all her careful preparation has resulted in the proper relation of the parts. The most common trouble at this point is too narrow and stiff a tongue, which makes the space between its edges and the teeth too great. Then she has to induce the child to relax the tongue and to widen it until he feels it softly touching the side teeth. Patience and many repetitions finally bring most satisfactory results.

But the work of teaching the *l* is as yet only partly done. Unfortunately the deaf child possesses an extraordinary ability to twist and turn his tongue into wrong positions when combining two or more sounds that he can make quite creditably alone. The same teacher now begins the use of her newly acquired *l* with the vowels, beginning with the one that is nearest to the position in which the tongue should be for a natural *l*. This is *ē*. The actual movement involved in saying *lē* is less than a quarter of an inch. Patiently she practises the child in saying *lēlēlēlēlē* with continuous voice, and *lē lē lē lē* with pauses between the syllables, and *ēlē ēlē ēlē,* until she gets a really *liquid l* and the child has *discovered* and *recognized* the *feel* of the sound. This *feel* of the sound is the great thing to a deaf child.

Speaking of the very small range of movement involved in the correct utterance of the syllable *le* brings me back to my text—"exaggeration." If any one will carefully observe *normal* speech, it will be clearly seen that the distances through which the lips, the teeth, and the tongue move are very small; also that the *muscular* effort required is very slight. Exaggeration of movement and of effort destroys the correctness and intelligibility of speech, especially on the part of the deaf. What the pupils see they naturally imitate, with many added touches of their own. The time element plays a much larger part in the intelligibility of speech than is generally realized. It is not possible to complete a given number of vocal positions in the same time when the distances through which the organs travel are two or three times as great as in normal speech. Therefore the ear of the listener is thrown entirely off the track when a deaf child utters his words with extremely exaggerated movements, even though the elements of the word are spoken individually with a reasonable degree of clearness. The ear has become accustomed to unconsciously assign a certain time to each sound of a word. If these intervals are changed, the familiarity of the word is lost.

But it is not only with the pupil's

speech that exaggeration on the part of their teachers plays havoc. It plays the mischief also with their practical and commercially useful lip-reading. It is a sad fact that the speech of many teachers of the deaf, when addressing their pupils, or any deaf person, is so outrageously exaggerated as to be merely a system of labial signs. I almost said gestural signs, because they do seem to gesture with their faces. Now I have no more objection to this sort of speech than I have to the sign language or finger-spelling, *per se*. My only quarrel with it (except the æsthetic objection that it is not beautiful) is that it deprives the deaf child of the much-needed practise in reading *natural* speech—the speech of the market-place, of the dinner party, and the dance. He can and does learn to interpret the facial contortions of his teacher, and, more's the pity, his own facial antics reflect hers as in a mirror; but this ability to understand her is of very little use when he wants to understand natural speech in the store or the workshop.

It is hard enough to learn to read the lips of the general public, and it is a long enough process even when the child has daily and hourly practise in observing it. Do not cheat him out of one minute of such much-needed practise by making face signs to him. Be natural and lie awake nights devising ways in which you can help him to form natural habits, both of speech and speech-reading.

When we listen to a sermon against some universal failing we always think how hard the preacher is hitting the man in the pew just back of ours, but his sharp words fly harmlessly over our own benighted heads. Do not be too sure that this warning against exaggeration should not be heeded by you. Perhaps your need of it is directly proportional to the number of years you have taught. If there should happen to be some one within reach who does not like you, ask him or her to observe you when teaching and to tell you whether you exaggerate. You may get at the truth that way, even if you cannot through your friends. We all need some one to tell us, for it is certainly true that an accurate consciousness of our own habits is very rare, if not wholly unknown.

AUTO-EDUCATION CONTINUED IN THE PRIMARY SCHOOL*

BY ALEXANDER GRAHAM BELL

I HAVE been giving a good deal of thought to the application of the Montessori principle of *auto-development* to the case of children of primary school age. Indeed, why should not this principle be carried out in all stages of life, even up to the very highest classes of the university? It is certainly safe to say that, as a rule, the great generalizations of science are dumped into the minds of students before they are ready to receive them as the products of their own auto-development.

* From *Freedom for the Child*, Washington, January, 1916. Being a lecture given by Dr. Bell to Miss Anna E. George and her assistants in the Montessori schools in Washington, D. C.

THE NECESSARY PRELIMINARY

To begin at the beginning of things, how are we to proceed with little children so as to give them the great happiness of discovering for themselves the generalizations of science? And what part does the teacher or director take in such a process?

It is the old question of feeding the chickens. It is the duty of the director to provide suitable mental food and place it before the children, so that they can pick it up for themselves; in other words, to provide *material* which may lead the children to discover for themselves the generalizations desired.

This question of the material to be pre-

sented to children seems to me to be of the very greatest importance; indeed, to lie at the very root of auto-development. We wish to lead the child to make observations of facts from which generalizations can be made; but the director, or directress rather, needs to reverse this order. She must consider first the generalizations, and then what facts should be observed that would naturally lead the child to make these generalizations. She must then invent *material* by means of which to familiarize the children with the facts.

The necessary preliminary, then, is the invention of suitable material.

This whole line of reasoning is an illustration of the fact that the adult mind proceeds from generalizations to details, whereas the immature mind proceeds from the observation of concrete facts to generalizations. The director proceeds from the generalization to the material, the child from the material to the generalization.

STAGES OF DEVELOPMENT

The process we wish to stimulate in the mind of the child is, first, to observe important concrete facts; then to remember the facts observed, so that he can compare them and note their likenesses and differences. Indeed, the process of reasoning consists largely in the discovery of likenesses and differences.

For example: In the ordinary House of Childhood we familiarize children with different-colored objects—red balls, blue balls, etc.; red silk, blue silk, etc.; blue sky, etc. These are all concrete things. By remembering a whole lot of objects that are blue the child generalizes, and arrives at the abstract idea, "blue"; and so with other colors and other qualities.

Then memory comes in to bring up the images of other objects—red silk, blue silk, etc.; red lips, blue eyes, blue sky, etc. He then compares, not objects, but *recollections* of objects of different kinds, as well as the likenesses of objects of the same kind which differ in color.

It is by the comparison of *recollections* that he arrives at generalizations of greater magnitude and importance than he can obtain by direct observation. Hence the very great importance of cultivating the memory.

Memory lies at the base of abstract reasoning. The abstract idea of color, the abstract idea of geometric form, and numerous other abstract ideas can only be aroused in the mind by the memory of multitudinous things learned originally, individually, by direct observation.

Thus observation comes first; memory brings together in the mind a multitude of past observations; then the reasoning powers are brought into play by grouping together in the mind the remembered facts according to their likenesses and differences. Just as we gain the abstract idea of "blue" independently of any object attached, so we obtain all other abstract notions, even up to the greatest generalizations of science.

First in importance, as lying at the base of everything else, is *observation*. The Montessori material is admirably fitted to stimulate the power of observation in a very young child.

Then comes the cultivation of the higher power of *memory*, and here again the Montessori material is admirably fitted to stimulate the memory of past observations; and I think that this approaches the limit of the Montessori material for very young children.

I am not altogether sure of this, for we do have material for the stimulation of higher faculties in some of the occupations of the Montessori system. But what we want to get at specifically is the stimulation of the power of reason itself, and it is principally in children a little older than those usually found in Montessori schools that the power of reasoning begins to manifest itself conspicuously.

MATERIAL

What sort of material can we provide to stimulate the faculty of reason?

Here we may be guided by the fact that the reasoning faculty first manifests itself, that abstract ideas begin to bud, when a child begins to note the likenesses

and differences of things; this is the first step of reason.

The child, having noticed some likenesses between things observed in the past, searches his memory for other things that resemble them. He thus begins to group together in his mind the things remembered according to their likenesses and differences; he begins to *organize* his knowledge.

This is the beginning of science, which consists of "organized knowledge."

There is an age when Nature reveals the fact that this process is becoming prominent in the mind of the child. It is when he begins to make collections of objects of various kinds; it may be of pebbles and stones, of shells, of birds' eggs, of coins, of postage stamps, etc. Here, then, is an indication of the kind of material wanted to stimulate the faculty of observing the likenesses and differences of things; to induce the child to organize his knowledge. It seems to me that we should encourage children to make collections of various kinds *and to arrange them as they wish themselves.* A boy cannot collect objects of similar kind without noticing minute differences that would escape his attention at the time the objects were individually obtained. In preparing his collection to be exhibited to others, he will naturally arrange the specimens in some sort of order; and, by arranging them, he is organizing his knowledge and exercising his reasoning faculties.

Here it is important that he should be left alone to make his own arrangement, according to his own ideas; for our object in encouraging his desire to make a collection is not the arrangement itself, but the stimulation of his own reasoning faculties. A geologist doubtless would prefer to have him arrange the stones and pebbles properly according to their geological formation, of which the child knows little or nothing, except what he is told by others. Such an arrangement, made on authority, leaves him helpless and dependent on others; whereas an arrangement founded upon his own independent observations stimulates his powers of comparison and leads him to group his objects together in accordance with characteristics that he has himself observed.

In his collection he is dealing with concrete things. The larger the variety of concrete things he deals with, the greater the variety of mental impressions that will be stored up in his memory.

He picks up a stone in the field, and, recalling to memory the specimens in his collection, thinks he has found something new, puts it in his pocket and adds it to his collection, arranging it in what he thinks its proper place. Here we have not only the stimulation of the power of comparing an observed object with the recollection of other observed objects, but the verification of his impression by the direct comparison of the objects.

I am pretty sure that the encouragement of collections of different kinds will be found to be an important means of exercising the faculties of observation, memory, and reflection; in other words, of exercising the reasoning faculties of the child.

DEVELOPMENT OF SOCIAL INSTINCT

There is another point in connection with the auto-development of the child at the collecting period. When he arrives at the age when Nature prompts him to make collections, he also develops the desire to exhibit his collections to others. He no longer desires to work exclusively alone; he is stimulated very largely by the appreciation of his fellows, and classroom work becomes possible. In fact, individual work has not the supreme importance it has at an earlier age.

He becomes more and more a social being as he becomes older. He becomes more and more fitted to work with others in the attainment of a common aim. He likes to associate himself with others in games of various sorts involving coöperation, to a much greater extent than he does in the earlier stages.

He starts out in life as an essentially selfish being. As he grows older he becomes more and more social in his habits, until he depends so much on the appreciа-

tion of others that he is in considerable danger of losing his own individuality and being swayed and led by others.

I think it certainly should be one of our objects, in the formation of character, to preserve and develop a strong personality, a strong individuality, that will not readily give up its own ideas.

The older we grow, the more are we affected by public opinion—that is, by the consensus of opinion of the people who surround us. The man of weak principles gives way and lets others decide what he shall do. On the other hand, the selfish man, weak in the spirit of altruism, drives his way through life without much reference to others, although even he, too, feels the restraining influence of an outside public opinion.

We should aim to develop a healthy spirit of egoism, or self-respect, as the mainspring in life, combined with a spirit of altruism, or equal respect for the rights and opinions of others; for this is the attitude of mind that is necessary in a social community. In my mind I distinguish between egoism and egotism. The egotist disregards the opinions and rights of others as inferior to his own, whereas by egoist I mean a person in whom self-respect is highly developed as the basis of character, but combined with an equal respect for the opinions and rights of others.

I am afraid that I am wandering from my subject; but the chief thought is that our processes of auto-education should aim to lead the child to develop himself into a social being, capable of fitting into a society or social community, taking his part as a strong, self-respecting individual, and yet respectful of others—an individual who, while tolerant of the opinions and rights of others, will do nothing inconsistent with his self-respect and his own ideas of right and wrong. In the composition of this individual self-respect forms the essential basis; or, as I frame it, a strong spirit of egoism tempered by altruism.

The point I have in mind is that as a child's education advances he should become more and more a social being—that is, instead of individuals working singly and alone, quite independently of others, the children should work more and more in groups, and learn to work together for the attainment of a common end.

EXPERIMENTS

When it comes to the choice of other material to aid in the process of auto-development, the directress should first single out some of the big generalizations of science, then develop experiments calculated to arouse the generalization spontaneously in the mind of a child, and consider what material should be required to make the experiments.

The moment the mind of a child is interested in some new and unexpected observation he begins to ask questions. He wants to know why this thing is so. If our object is to give him information, we tell him; and he will accept our explanation on our authority. But if our object is to develop the reasoning faculties of the child, we will not tell him, but help him to answer his own questions.

We can help the child by discussing with him how we can find out the explanation. What does he think of the matter himself? His thought may guide us in planning some experiments that may confirm or disprove the child's ideas.

Take advantage of the child's desire to know by leading him to address his questions to Nature herself; in other words, by planning experiments to answer the questions, or rather, by leading the child to plan experiments, bearing always in mind that our object is to stimulate the mental faculties of the child to solve his own problems in his own way. *It is not so important that the conclusions he draws are correct,* but it is important that his own mental powers should be exercised in attempting a solution. Whatever conclusions he reaches by experiment we should acquiesce in, if he has reached them himself. If we know that his conclusions are wrong, it is then for us to consider his attitude of mind and develop experiments that may lead him to discover for himself that his former con-

clusions were incorrect. Let us take some specific case.

All children, at a very early age, have discovered that things have a tendency to fall to the ground unless supported. They have therefore unconsciously arrived at the generalization that *all* things will fall to the ground unless supported. How fascinating and interesting, therefore, it is for a little child to discover that a toy balloon rises in the air instead of falling! His interest arises from the fact that this seems to be opposed to his preconceived notions. It is the exceptional and unusual that makes an impression upon his mind.

At once the question "Why?" is aroused. It is not for us to answer, in the state of development considered; it is sufficient that we place balloons among his materials, so as to arouse the question in his mind, and let him ponder over it.

Familiarize him with other experiments having a bearing upon the matter. Take other fluids than air—water, for example—and let him discover that some substances sink to the bottom, while others go up like the balloon and float upon the surface.

Let a good, big tank of water, with glass sides, if possible, be among the materials provided, so that he can have plenty of opportunities of finding out for himself what things sink and what things float. This is a basic idea in science, lying at the root of specific gravity. Water is the universal standard of comparison for specific weight, and, knowing this, we naturally divide all substances into two classes—those that sink in water and those that float; those that are specifically heavier than water and those that are specifically lighter.

It is neither necessary nor advisable at first that he should know why things float or why they sink. It is sufficient that he should know that they do sink or float. We can ask him whether a piece of rubber, for example, would sink or float. He may not know, and it is not our business to tell him. Simply say, "Try it."

We can suggest other experiments that will give him new things to think over. For example: Will a plate float? Try it, and sometimes it floats and sometimes it doesn't.

Push an empty tumbler, mouth down, in the tank, and the water will not enter it. Why not, if it is an empty tumbler? Lead him to discover that it is not empty, but that there is something inside which prevents the water from entering.

Fill a tumbler under water, and then lift it up, mouth downwards; and, although the tumbler may be lifted considerably above the surface of the tank, the water will not come out. It stays there until the mouth of the tumbler is above the surface, and then the water comes out with a gush.

By such experiments we naturally arouse questions in the mind. Why did the water come out in the one case and not in the other? It is not for us to answer the question, but simply to familiarize him with the fact. Then we may suggest experiments which will reveal the answer.

Take two tumblers, for example, one full of water and the other empty, and hold them both upside down under water. Turn the empty tumbler gradually right side up under the open mouth of the full tumbler—that is, pour the air from the lower tumbler into the upper—and the full tumbler will then become "empty" and the empty tumbler full. The reality of air, as an invisible fluid, will thus be demonstrated, and dissipate the mistaken notion that one tumbler was full and the other empty. It will also become obvious that air is one of those things that will float upon water; that will go up in water just as a balloon goes up in air.

This conception of air as a real substance is of the greatest importance for the explanation of numerous natural phenomena.

I think also that a large bottle of mercury should be among the materials supplied. Make a little tank of mercury, and a child will find that a stone which will sink to the bottom in water will float like a cork in mercury. Even iron will float,

and lead. Indeed, I don't think a child can find anything that will not float in mercury.

Don't, however, let him try a piece of gold, unless you want him to discover that gold will dissolve in mercury like a lump of sugar in water. If you care to drop a gold ring in mercury, I have no doubt it would float, but don't let it stay in too long; take it out at once, and let the child observe that it has become tarnished. It may need to be sent to the jeweler to have the tarnish removed, but no great harm will be done by a mere momentary immersion.

I am a little doubtful how far it is advisable to have children experiment with animals, but I really should like to see for myself what a mouse would do if put into a basin of mercury. It wouldn't harm the mouse, but I suspect that he would be unable to sink in deeply enough to swim; he would probably topple over on one side.

Then, again, it is a most interesting thing for children to spill a little mercury in a tray and try to pick up the little globules with their fingers or push them together and see them unite to form a bigger drop.

A multitude of new experiences will be obtained by playing with mercury, always remembering, however, that mercury is poisonous if taken into the stomach.

One thing a child cannot fail to observe is the great weight (density) of mercury; and his mind will associate the weight (density) of the liquid with the flotation of bodies in it.

By comparing the behavior of bodies in water and in mercury, generalizations of the most important character will naturally be aroused; and when the children come to realize that air is also a fluid like water and mercury, they will naturally apply these generalizations to air, and have the key to the explanation of atmospheric phenomena.

Measurement lies at the basis of all exact knowledge. Hence among the material provided for children should be instruments of measurement, and they should be familiarized with their use.

For example, we should have thermometers in the school-room so placed that the children can read them. They should be asked the temperature, ascertain it by themselves, and report. Then experiments involving temperature observations should be devised, of a kind to interest children. Let them note the effect of ice in reducing the temperature of water, and how they cannot cool water below 4 degrees centigrade, or heat it above 100 degrees centigrade (the boiling point of water). They cannot burn the bottom of a kettle by roasting it over a fire, so long as there is water in the kettle. They can boil water in a paper bag, because they cannot heat damp paper above the boiling point of water, etc.

A mercurial barometer would also be a good instrument to have in the school-room, so that the children may be familiarized with the meaning of "rising barometer," "falling barometer," etc.; and they may become accustomed to the measurement of atmospheric pressure in "inches" or "centimeters" of mercury. A mercurial barometer would be much more useful in this respect than an aneroid barometer.

The children should also have access to a pair of scales and become accustomed to weigh things. In this connection a *spring balance* would be especially important, as giving a measurement of force independently of gravity and independently of the direction in which the force is applied. Here pulleys would be of use for supporting weights upon a string. An object supported directly by a spring balance will show the same weight as indicated by a pair of scales; but if it is supported by a pulley on a string, and the two ends of the string are connected to two spring balances, each spring balance registers one-half of the weight, etc.

If a weight proves too great to be measured directly by a spring balance, it can be supported on a string by means of a pulley, one end of the string being attached to a hook in the wall and the other end to the spring balance. The spring balance will then register just one-half the weight, and by applying arithmetic they can calculate the whole weight.

There should, of course, be yardsticks,

foot-rulers, etc. (preferably, I think, on the metrical system), for measuring lengths; also liquid measures for measuring cubic capacity, especially a cubic centimeter and a liter measure.

The relation of weights to measures of length is much more easily perceived if we use the metrical system. As this constitutes the *only system of measurement universally employed,* it would be well to use it. It also simplifies very greatly the arithmetic involved in measurements.

Measurements of every kind afford valuable practise in arithmetic. Problems that naturally arise in the schoolroom will be more useful as exercises than set sums in which the children are not interested, as they represent something that the children want to know.

I am inclined to think that it would be advantageous to employ the decimal system of measurement, as involving simpler arithmetical problems than our cumbersome systems of measurement; but this is a detail which may be subsequently considered. The important point is to have the children themselves use instruments of measure.

In this connection it would be easy to interest children in vibrations. The school playground should be equipped with swings, differing in the length of supporting arms; and a pendulum beating seconds would be useful, as well as others of different lengths.

The lever principle could be illustrated by a balance with unequal arms and by see-saws in the playground, one having arms of unequal lengths whereby the smallest child can balance the largest man. There should also be different kinds of levers, including a circular lever of wheel form supported upon an axis, whereby weights, however small, may be made to balance weights however large.

Indeed, we might have models illustrating all of the mechanical powers.

Among the materials for auto-education should be found glass tubes and test tubes of various lengths. Especially should we have a long glass tube closed at one end—a very long tube, at least a meter in length.

If we fill this tube with water and hold it with the open mouth downward in water, the water in the tube will not run out. This is substantially the construction of the mercurial barometer, but, of course, in using water as the liquid we should require a tube more than 32 feet long to develop the point that there is a limit to the length of the column of water that can be supported in such a tube. The meter tube will remain full of water to the very top. This experiment and other similar experiments will be calculated to arouse in the mind the query: Why does not the water run out of the open mouth of the tube?

Then let us take a glass tube open at both ends and fill it with water. Plug up one end with the finger and hold it vertically, with the open end a little below the surface of the water in our tank. The tube will remain full of water so long as the finger closes the upper end, forming a column of water far above the level of the water in the tank. The moment we remove the finger from the upper end of the tube the water will run out below, until the level of the water inside the tube is substantially the same as that outside.

We must lead the child to make this discovery for himself, and to have the great pleasure of ascertaining for himself. One of the reasons why the water did not run out of the tube when closed at the upper end: the air could not get in. *Don't tell him this,* but lead him to generalize for himself.

Take an ordinary teapot, lead him to observe the little pinhole in the lid, and arouse the query in his mind: What is that pinhole for? He may be bright enough to discover that he cannot very readily pour out tea from the teapot if he plugs up that little hole. Various experiments of this sort will lead him to the conclusion that a liquid will not run out of a tube unless air can get in at the top.

Then try similar experiments with mercury instead of water, and the mercury behaves as the water did; but if you try a tube over a meter long, you cannot keep it full of mercury; the upper part of the tube will be empty and the mercury will form a column only about 76 centi-

meters high. The natural assumption is that air has got in somehow, but how it could get in through the glass at the top is a puzzle. *There is no need to try to explain matters;* simply observe the fact that the mercury cannot be retained at a higher level than 76 centimeters (about 30 inches). If air could get in at all, why did not the mercury all run out at the open mouth of the tube?

This is, of course, a barometer; and if it is left in the school-room the children will find that the upper level of the mercury will vary from day to day and from hour to hour. Let the child fix a piece of paper behind his mercury tube and mark upon it the upper level of the mercury. By and by he may discover that the mercury has risen to a higher level than before, which is inconsistent with the idea of a leakage of air into the tubes to account for the empty space at the top. With such a leakage the mercury might fall, but could it rise?

Of course the children have all heard about the barometer and the weather, but there is no need of telling them prematurely that their glass tube filled with mercury is a barometer. If they discover for themselves this association between the movements of the mercury and the condition of the weather, it will give them much more pleasure than if their attention was directed to the point. Then it will be time enough to tell them that their tube is a barometer.

Once they have noticed the association referred to, they will want to consult the mercury tube to see what the weather is going to be. When the mercury is going down rapidly they will anticipate bad weather for their outdoor sports; and when they are kept indoors by bad weather, how anxiously they will look for the first sign of a rise!

While they may have no conception of why the mercury goes up or down, the moment they see the connection between the weather and the movements of the mercury they will realize that the height of the column does not depend exclusively upon the presence or absence of air in the top of the tube, but that some outside influence is at work. They may thus be led to the inference that the air outside the tube—that is, the atmosphere—has something to do with it.

The very first element in exercising the mental faculties is that a question should be aroused in the mind; and this mental attitude is produced by the observation of some phenomenon that is not understood. To *explain* it to the children prevents the exercise of their mind-muscles, so to speak; and when muscles are not used they do not develop. If our object is to develop the reasoning faculties of a child, lead him to observe many facts that he does not understand, and let him ponder over them by himself.

There is probably a time in the development of a child when he needs different treatment. In the stage that we are considering it is our object to lead him to exercise his own reasoning faculties; to find out things for himself by the exercise of his own mental powers. By and by, when his mental powers are more mature, comes the time when mere information, or knowledge arrived at by others, becomes of importance; but he must have nuclei of information derived from his own observations and reflections before his mind is ready to absorb much of what others have done.

By intelligent experiments made by the child we stimulate his mental powers and lay a firm foundation for mental improvement.

A JAPANESE GIFT TO THE VOLTA BUREAU

The exhibit made by the Tokio School for the Deaf at the Panama-Pacific International Exposition has been presented to the Volta Bureau. In addition to framed photographs showing class-rooms and pupils, the gift includes the following text-books used in instructing deaf children, all of which are now available for inspection in the reference library of the Volta Bureau: 6 books on drawing, 16 on reading, 6 on geography, 4 on history, 8 on ethics, 6 on arithmetic, 4 on natural science, and 16 copy books in penmanship; also 1 copy of Isawa Shüji's text-book on Visible Speech, 1 copy of "Furnkawa's Method of Teaching the Deaf," and 3 books for "The Corrective Training of the Stutterer." The gift came through His Imperial Japanese Majesty's Commission to the Exposition.

REPORT OF CORRECTIVE SPEECH WORK IN THE ROCHESTER PUBLIC SCHOOLS

BY GRACE T. BROWN*

CORRECTIVE speech work was begun in the Rochester public schools in September, 1913. It was only a small group that gathered in School No. 12 the first term. A class of 37 children was formed—some from No. 12, others transferred from neighboring districts. Of these 37 children, 11 were treated for dyslalia, and severe cases they were; others for lisping, sigmatism, and minor defects.

The children were interested and anxious to correct their speech and carried out directions not only in the grades, but at home. Parents and friends thus became interested, and visitors to the class were many.

As the work became known, interest spread and demanded other centers. This necessitated another teacher, and during the next year six schools had classes for corrective speech work. At present the demand is so great that we hope each teacher may have an assistant who will follow up cases which have started, giving the drill necessary to complete the cure.

The average age of the cases is approximately 10 years. As yet, no cases have been treated in the high schools. Thus far only the children from the first to eighth grades have been enrolled, but we shall undoubtedly enter cases from those schools later.

Before a child enters the speech class he is examined and his case diagnosed by the speech teacher. His speech card is filled out and he is then ready for a physical examination by an especially appointed and capable physician. It is really the doctor's diagnosis which decides whether or not a child is eligible to the speech class; for if a physical defect is such that it will not warrant speech training, the child's parents are notified, and they place him under the care of the family physician or specialist, as the case may demand. If the parents are unable to do this, the child is sent to one of our hospital clinics, and treatment is continued until such a time when the doctor shall decide the case to be amenable to speech training.

If there are no noticeable physical defects which would prevent speech work, the child is entered in the speech class, and at the same time his physical condition is taken care of, records being kept of all defects remedied.

Since the forming of the class 177 children have been treated for the following defects:

Dyslalia	65
Neglect lisp	39
Sigmatism (simple, lateral)	38
Simple lisp	31
Organic lisp	2
Tic speech	1
Dysarthria	1
Total	177

The children are treated both individually and in groups, as conditions may demand. If there is a small group with the same sort of defect, so that the same exercise may be given, class work is generally satisfactory. The work is, however, individual until the mechanism of the sound to be corrected is learned and repetition becomes easy.

The length of time for correction varies with the defect and its degree of severity. I daresay there is no work which requires the concentration and application on the part of the pupils as in the correction of speech. Every time he speaks it is either for or against the new habit. He is not only breaking down an old habit, but building up a new one. At first it is so easy to talk in the old way and so difficult to use the new sound.

* Miss Brown is a teacher of corrective speech, and her report was read by Dr. W. B. Swift at a symposium in Boston, Mass., January 28, 1916.

The results which have been obtained through the coöperation of the grade teachers are very gratifying.

In June, 1914, letters were sent to parents of children who had been instructed in corrective speech asking for their judgment on the value of the instruction. The replies to these letters showed conclusively that the children were greatly benefited and the parents very appreciative of the work done.

Of the 177 cases mentioned above, 91 were perfect cures; 81 showed marked improvement; 4 no improvement, owing to organic defects. The discharged cases are frequently supervised to see that no relapse occurs. So far there seems to be little, if any, recurrence of the old speech difficulty. Children who stammered severely, and would rather be marked zero than try to recite before a grade, now are able to go on to high school and recite before a larger class and new teachers.

The Rochester schools have not as yet initiated any program of prevention as such. The corrective work has only begun, but as the scope enlarges we hope to introduce such drills into the primary grades as will eliminate to a great extent the simple and minor defects.

The work of correcting speech requires on the part of a teacher that she be sincere and conscientious in her work. She should have a thorough knowledge of the mechanisms of the English sounds, the physiology of the vocal organs, brain centers, nerves, etc., that produce and control speech. She should be able to detect and diagnose speech defects and to know how to correct them.

WHAT IS DISCIPLINE?*

BY ROBERTA FLETCHER

ONE hears on every hand so much criticism regarding the lack of discipline in the Montessori method that I feel that this side of the method is the part least understood. Whenever I hear any one criticise it in this way, I wish that he might spend a morning in a Montessori school, observing the activities of that morning from the standpoint of discipline only. To me, from beginning to end my school day spells discipline for the children as well as for me. Most of it is self-discipline, to be sure, but for that very reason all the more valuable.

The other day a Catholic priest was visiting the school. A little girl wanted me to help her with the letters, and, running over to me, interrupted me in the middle of something I was saying to him. I told her to wait until I had finished speaking to Father McVay and then tell me what she wanted. The father exclaimed, "Now that interests me very much, for one always hears there is no discipline in a Montessori school." I told him that Dr. Montessori gives two broad rules for regulating the conduct of children: one is that a child's conduct must not disturb the collectivity—that is, he must not be allowed to do anything which will annoy the social group in which he moves—and, secondly, he must not be allowed to commit any ill-bred act. These rules regarding conduct give the teacher a foundation for intervention; they help her, on the one hand, to realize that "freedom for the child" is not an unsocial tendency leading to disintegration and demoralization. On the other hand, the negative significance of these two rules is even greater than the positive; it prevents the teacher from intervening arbitrarily to stop actions which are not only not harmful to the group, but are natural and good for the child. A child, for instance, rests himself by putting his head in his arm on the table in front of him. I have often seen teachers correct children for just this thing, considering it a waste of time or disorderly. A child rests himself through

* From *Freedom for the Child*, Washington, January, 1916.

exercise, by hopping or skipping across the room, or he stops to watch another child at work—relaxation of a sort which is disturbing to no one, and only because school-room traditions have stamped such acts as misdemeanors does a teacher feel called upon to intervene to stop them.

Now, to the outside observer intervention on the teacher's part to stop an ill-bred act is very obvious—"Why, yes, here is discipline—the children are disciplined after all"—just as the priest visiting my school saw discipline in my stopping a child from interrupting me; but many do not see how much more disciplinary and constructive is the child's voluntary conformation to his environment, for through his spontaneous acts his will (which can only develop through his self-activity) is exercising itself and growing, and self-control (which always goes hand in hand with the normal development of the will) is being strengthened.

The first act performed by the child upon arriving at school is disciplinary—the removing of his own wraps and putting them in an orderly way on his hook. Then, entering the school-room, the child chooses his own work, and in the first weeks of school, or whenever a new child is entered, one is apt to see an occurrence such as this ensue: the child may handle the piece of material he has chosen so awkwardly as to drop it. Suppose he has chosen the "stuffs" which are kept in a small chest of drawers. If he carries the chest in the wrong way the drawers fall out. Now comes the very real discipline of picking the things up and getting them back into order—it is not an arbitrary rule but a necessity, and the child starts to pick them up almost instinctively. The impulse to pick up what one has dropped prompts a spontaneous act; the patience and effort required to persist in the act until the scattered objects are replaced often takes a great deal of will power and is most valuable discipline for the child.

It is not considered a misdemeanor on the child's part when he drops something causing a noise and some degree of confusion—he is not corrected for a naughty act, but is given a lesson in how to handle the materials, so that by proper exercise he will be able to coördinate and control his movements better. I have often marveled at the patience children display in taking a lesson of this kind. It reveals how deep is their desire to be masters of themselves, to become men. The child will put forth repeated efforts to acquire what is vital for him to know—how to control himself. The fact that his efforts are spontaneous does not mean that he is not being disciplined. He is being disciplined by life itself; he is learning by living experiences to put forth greater and ever greater effort to gain mastery of his environment, which can only be done through mastery of self.

PARENTS' ASSOCIATION MEETING

A meeting of the Nebraska Parents' Association to Promote the Oral Education of the Deaf was held the afternoon of January 3 in the School for the Deaf. It was well attended by Omaha members and members from out in the State, and the proceedings were interesting and profitable.

Officers were elected for the year as follows: President, John F. McLane, of Omaha; Vice-President, Frank P. Johnson, of Minatare; Secretary, Mrs. John S. Reed, of Lincoln; Treasurer, Frank Falbaum, of Omaha. Executive Committee, Al. N. Dafoe, chairman, Tecumseh; F. H. Bacon, Overton; John S. Reed, Lincoln; G. A. Orr, Lynch; W. M. Cornell, Homestead; C. L. Kelly, North Bend; J. L. Beebe, Red Cloud; Mrs. Anna Lewis, Clay Center; Dr. D. A. Rundstrom, Wellfleet; E. J. Babcock, North Loup.

LIP-READING

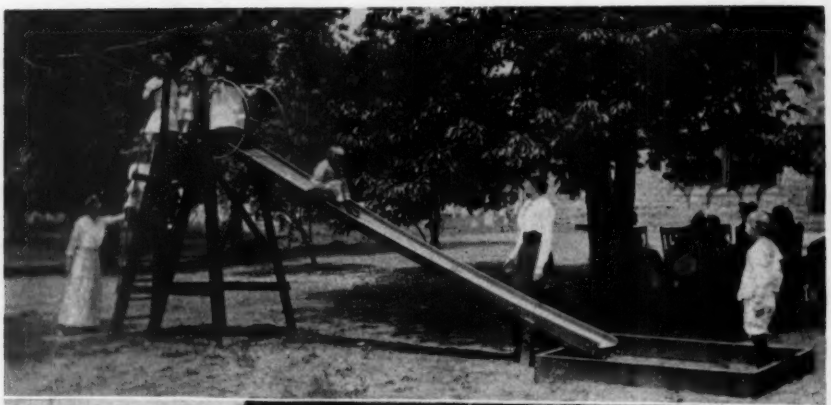
To the Editor of The Dispatch:

I wish that the fact that lip-reading is a great advantage to the deaf was given more publicity. If persons whose hearing is defective would start to read the lips promptly, they would be the gainers.

My ear specialist recommended lip-reading for me, and it has benefited me so much that I want other hard-of-hearing people to know about it. When it is possible to understand the conversation of family and friends without hearing a sound, why don't more deaf people try it?

The Volta Bureau (1601 Thirty-fifth street northwest), Washington, D. C., will furnish names of teachers of lip-reading and tell where the teacher may be found. The bureau is a philanthropic organization, founded and endowed by Alexander Graham Bell to promote the interests of the deaf. LIP-READER.

—*From the Pittsburgh Dispatch.*



1. THE SLIDING BOARD FOR THE YOUNGER MONTESSORI PUPILS. 2. MRS. ANDERSON'S NORMAL TRAINING CLASS OF MONTESSORI STUDENTS. 3. MRS. ANDERSON AND HER STAFF OF TEACHERS AT TORRESDALE HOUSE, PHILADELPHIA.

AUTUMN: MRS. ANDERSON AND SOME OF THE MONTESSORI CHILDREN ON THE STEPS LEADING INTO THE MONTESSORI ROOM

NOVEL TESTS IN THE WAR AGAINST FAULTY SPEECH

UNDER the above title, and with the subtitle of "Droll Infelicities in Word and Diction Developed by Scientific Investigation, the First Ever Made Along Educational Lines, of the Language Employed by Children in Montessori Class Work," Grace Van Braam Gray tells the readers of the Philadelphia *Public Ledger* (Sunday, November 7) what the results of the research tests were. After a picturesque reference to the "conflict between the King's English and American slang," she writes, in part, as follows:

"The most striking of these experiments and the ones whose results were so novel that they will take their place in educational history were the recent word tests made by Mrs. J. Scott Anderson, directress of Torresdale House, the Episcopal Montessori School, in connection with Dr. Albert Duncan Yocum, Ph. D., the professor of educational research and practice at the University of Pennsylvania.

"The tests, which are the first ones of their kind ever made, were theoretically to ascertain just how many words heard were understood and remembered; but actually they showed astounding results apropos of the language used by grown-ups—and teachers at that!

"Slang, colloquialisms, clipped words, unfinished sentences; abrupt deviations from the main thread of a phrase to go back and bring out more strongly some point of previous mention; and, worst of all, the continual reiteration of words, proving a limited vocabulary, were all brought out in the stenographic notes of lesson hours in school—notes which in consequence are strong weapons in the

WINTER: SOME OF THE MONTESSORI CHILDREN ON THE PLAYGROUND IN FRONT OF THE MONTESSORI SCHOOL-ROOM

PLAYING GAMES WITH THE MONTESSORI COLOR BOBBINS AT MRS. ANDERSON'S SCHOOL

TORRESDALE HOUSE, TORRESDALE, PHILADELPHIA, PA., SHOWING ENTRANCE INTO THE MONTESSORI ROOM

hands of those who believe that purity of diction should be the first requirement of a teacher.

" 'It was astonishing,' admits Mrs. Anderson herself, 'to find how each one of us had pet words or phrases that we used continually and which the children in consequence used with a fidelity that even included our exact inflections. The youngsters also use phrases from the lips of mother or father, which they repeat in so unconscious a mimicry that it almost visualizes the absent parent, and shows only too readily that the lack of good English arises from the failure of the children to hear it.'

PHILOLOGY WITH PSYCHOLOGY

"The tests, of course, went much further than the average word experiment that Kirkpatrick and others have conducted, and which proved that the names of objects seen were remembered far longer than those same names either written or spoken; in fact, the tests at Torresdale House so closely united philology with psychology that they proved a quaint word-picture of the lovable egoism of small boys and girls, to whom the world means only the little circle that revolves about them.

"They proved conclusively that children must make a personal application of the word to remember it and get its real meaning, though they will pick up phrases and repeat them parrot-like just because they have *heard* them; and here one may add that while the tests made by Mrs. Anderson in connection with Dr. Yocum's seminar in 'Experimental Investigations of Methods of Instruction' had nothing whatever to do with psycho-analysis, the

A HAPPY LITTLE MONTESSORI PUPIL

She has watched her bulb grow (water culture) and given it daily care. Now she has planted it in a paper flower-pot, cut some red paper to wrap around the pot to give a touch of Christmas time, and is adding a little more sand to steady the slender stalk. This shows care of material by Montessori children.

MONTESSORI PUPILS MAKING RUGS FOR THE DOLL'S HOUSE AT MRS. ANDERSON'S SCHOOL

word tests of the latter curiously corroborate the philological tests of the former.

"My tests were actually to see how clear the child's understanding was, and to carry them out it was necessary, after the word had been used frequently by the teacher, to devise a situation in which the child would naturally use the word. I was careful always to note the temperature of the room, since either extreme heat or extreme cold has a decided effect upon attention. Among the training-school girls we concealed a stenographer where her note-book would go unnoticed.

RESULTS VERY STRIKING

"It was for such reasons that the Torresdale school was chosen, as I could not be sure of being able to play out the little verbal comedy any place else. Of course, I was not always successful, but the results on the whole were very striking, though they were far from satisfactory from the standpoint of good English.

"Not only, I found, do the majority of children clothe their ideas in rags and tatters of language, with ambiguous phrases and a great deal of slang, but the teachers are far from exempt from it, and I personally could not believe my ears when the stenographer read off the notes of my own speeches during school hours. I felt more or less comforted, however, when Dr. Yocum confessed that he had felt the same conviction that he had been 'taken down wrong' the first time he read stenographic notes of one of his own lectures; and, for that matter, the speech of very few of us could pass muster in the army of the King's English, under whose standard we are, however, all enrolled.

"The tests so far have only been in conjunction with 20 words—10 nouns, including arch, crow, dilly dally, lad, lass, lays (merry lays), mourning-dove, meadow-lark, track, and tune; four adjectives—greedy, slender, thick, webbed—and six verbs — complete, grade, greet, traveling, volunteer, and wriggle. Of these, traveling and volunteer were not used at all by the children during the time they were under observation. They

Miss Margaret Turner, a graduate of the London higher Froebelian teachers' training course. Miss Turner was sent to Torresdale from Montreal by Lady —— to study the Montessori method, and, returning, started a private class of six in Lady ——'s home.

seemed to have an idea of the meaning, however, but translated into their own terms of 'going away' or 'going walking'; while of volunteer they gained an inkling through the sentence in which it was used.

SOME EXAMPLES OF USAGE

"Dilly dally, for instance, meant 'you'll be late for school;' greedy meant 'eating everything yourself and not giving anybody a bite;' 'arch' was 'the shape of a bird's nest I saw (the meadow-lark); 'thick' was 'my new coat,' and wriggle was obviously associated with many pa-

SPONTANEOUS WRITING BY MONTESSORI PUPILS

G and *T* from sandpaper letters made by Mrs. Anderson. These letters are arranged to carry the Northampton phonetic chart symbols into Montessori work and have been in use by Mrs. Anderson since 1912, yet all are still usable.

rental warnings not to do it, and was therefore not a popular word.

"Meadow-lark was a bird who was not remembered because he had not been seen, but 'Bob-o-link' was recalled by one little girl who 'had a picture of one at home.' Sometimes the mention of the word would come spontaneously from the child, showing that it had hovered in her mind, and sometimes the situation was arranged to make the word or some substitute necessary; but often this reaction was 10 or 12 days after the word was presented by the teacher, the presentation usually being repeated (with its meaning) about eight times during the day.

"The value of these tests from an educational and also a material aspect is incalculable. They open a window, as it were, into the workings of a child's mind. Thus the child, meeting a new word, tries (*without intention*) to associate it with something in his little world, and if he is successful the word is added to his vocabulary; if unsuccessful, the word is pushed aside.

"In the meantime I am going on with my tests, in view of what we have learned about the coördination of words and ideas. The reading without understanding; the singing of songs which mean nothing; the glib recitation of lessons that have been learned parrot-like, and then the use of slang and 'bad grammar' for general speaking must be done away with. In fact, these things sum up the faults of education in general and for kindergarten children in particular.

CHILDREN PERSONIFY OBJECTS

"As perhaps you know, we teach reading by the phonetic process—the same process that I used for the deaf (I made my own sandpaper letters based on the Northampton charts), and which enables the child to learn to read without effort and also to write on the blackboard. The

letters are made of sandpaper mounted on heavy cardboard, and over them the child runs his fingers while pronouncing the sound, thus combining the senses of hearing and sight with muscular memory. Phonetics are real, tangible things to the child.

"The letters of the alphabet are individual to the child. All the birds and animals are *Mr.* and *Mrs.*, as the case may be, and take a definite place in the little world of every day for the average child. It is our hope in the weeks to come to make some special tests of emotional words that cannot be connected with a definite object, and thus see how the child will work out the meaning for himself.

PARENTS MUST ASSIST

"Other members of the seminar are also working out various educational problems of the child, and tne results of the work in Philadelphia will spread across the entire country to aid the King's English in his tremendous conflict. A real victory for language cannot, however, according to the pedagogues, be achieved until the parents correct their own English."

EXERCISE FOR CONVERSATION CLASS IN LIP-READING

All Signs Fail in a Dry Time

BY GRACE K. WADLEIGH

TEACHER:

Do you think it will rain?
Do you think it will rain before night?
Why do you think it is going to rain?
What are some of the signs of rain?

Pupils give various answers to the questions.

Pupils read in turn from slips of paper the following *signs:*

1. The birds were all flying very low in the air.
2. There were no spider-webs on the grass.
3. There was no dew on the grass.
4. The maple trees were showing the whites of their leaves.
5. The wind was from the east.
6. The sun went down in gray clouds.
7. Mare's tails clouds were moving fast across the sky.
8. There was a ring around the moon.
9. The tree-toads were making a noise.
10. The swallows were standing listlessly in long lines on the wires.
11. The soot was strong in the chimney flue.
12. An angry sunrise had promised rain.

Teacher reads the following:

ALL SIGNS FAIL IN A DRY TIME

BY NELLY HART WOODWORTH

We knew it would rain—or thought we knew—
For the sun went down in gray,
And an angry sunrise had promised well
That rain was not far away.

The weather man had been oversure
Of his plans; they had fallen through.
He drew a circle around the moon
And played pranks with the dew.

Mare's tails were trailing across the sky
Like a charging cavalcade,
And mackerel clouds were floating by
In filmy robes arrayed.

The swallows stood in a long, long line
On the wires in a listless way,
And patient robins had called for rain
Through the parched and thirsty day.

The cuckoo told that the rain was near
Over and over again,
And birds flew low lest their wings should pierce
Some cloud that would break in rain.

The maples showed the white of their leaves,
The chickweed closed its eyes,
And little spiders had spun no webs
On the grasses—weather wise.

The tree-toad peered from between the leaves.
"I can surely tell," said he,
"When rain is coming. If you would know
You can always trust to me."

The soot was strong in the chimney flue,
And an east wind promised well;
But the signs all failed, as they sometimes do,
For never a raindrop fell.

THE FURTHER TRAINING OF THE DEAF AFTER SCHOOL AGE

UNDER this title, *The Teacher of the Deaf*, London, has presented a symposium of the views of leading teachers. To this symposium Mr. J. G. Shaw, superintendent of the school at Preston, contributed the following to show the extent of the demand for such provision:

"The elementary schools provide for the multitude; every deaf child is entitled to the best elementary education the State can provide. But higher education is required only for the select few, and I should think every elementary school has its share of those who would benefit from higher education if they had the opportunity. There can be no hard and fast line of selection, but an entrance examination, or at least an educational standard of entrance, ought to be agreed upon; for it is not merely a continuation school that is needed, but a school for those deaf persons over 16 years of age who are capable of receiving higher education and of rising in the intellectual scale in spite of their deafness.

"Speaking from experience of deaf pupils in a great factory district, I must say there has been very little demand on the part of the parents of our pupils for higher education; but I could quote quite a number of cases of those same pupils who, while earning their own living in their teens, have carried on their education by reading, by private study, and by mixing with the world, with such marked success as to make their old teachers marvel. Such persons need higher education, and if opportunities were provided some of them would get it, though others would have to go to work, to earn their own living, the very day after the law of the land released them from schooling.

"In reference to the 'demand for such provision,' I attach more importance to the unconscious demand of the children themselves than to the wishes of teachers or the views of parents. Over and over again have I been struck with the fact that a boy (or girl) in his last year at school seems only on the threshold of mental development. The drudgery of the very elementary work is over; character has been formed; interest has been aroused; a certain amount of language has been acquired, and the child begins to feel that language opens to him the door of knowledge which he longs to enter.

"While all boys and girls are glad to leave school and throw off its trammels, many of them speedily return to such educational methods as are open to them; for they have acquired a thirst for knowledge and a desire to be on an equality with their hearing brethren which compels them to acknowledge that their school days were the happiest and the most useful period of their lives."

"Strange Creatures Hard to See" is the title of an interesting description by Dr. David Fairchild of some of the insects found in the backyards and of the many curious homes that these insects have deserted or cast off, in *The Youth's Companion* for January 20, 1916. It is a pen picture of facts that will fascinate every child whose faculty of observation has been cultivated.

ROBERT C. SPENCER: AN APPRECIATION

BY ANNA SCHAFFER CRITTON

NOT only the educators among the deaf, but the entire field of educational work in this and other States, will miss the discerning mind, the great sympathetic heart, and the helping hand of Robert C. Spencer, who "passed on" a few weeks ago.

The news of his death came as a shock to his friends, for he was actively engaged to the last. Somehow, in spite of Mr. Spencer's 86 years, we never thought of him as old and decrepit—he seemed perennially young—in fact, his mental outlook was usually a decade or more in advance of the general trend of thought.

His father, Mr. Platt Spencer, was the originator of the Spencerian system of penmanship, so widely used, and the son's professional work was in the commercial schools. He founded the well-known Spencerian Business College in Milwaukee and was its active head for over 50 years.

In addition to his constant work in the commercial school, Mr. Spencer was always identified with every progressive movement for the welfare of his loved home city, Milwaukee, and for Wisconsin as well. One of his pet interests was the educational advancement of the deaf. His first acquaintance with this work dates back to 1878, when he became interested in a small school that had been opened in a private residence in Milwaukee. There were four pupils under the instruction of Prof. Adam Stettner. At that time all instruction in this school was given in the German language, by the pure oral method.

As this small school grew, there was organized on the part of some philanthropic and benevolent German citizens of Milwaukee what was known as the Wisconsin Phonological Institute. Twelve men comprised the Phonological Board and had the management (in a business way) of the institute. For a time the instruction was entirely in German and all the records were kept in that language. The institute grew in membership and revenues and added a woman's auxiliary society composed largely of German-American mothers. Mr. Spencer was for many years president of the Phonological Board.

About 1882 the first attempt was made to change the institute to a public day school for the deaf, through legislation, but the bill providing for this change was defeated. The gradual evolution of the public schools for the deaf of Wisconsin from this small beginning is a long story, but through all of it Robert C. Spencer stood steadfastly at the helm, an unfailing champion, tireless in his efforts. No member of his family and no deaf friend was afflicted with deafness, so his interest was an entirely unbiased one, and arose from his strong belief that every deaf child of the State should receive the same careful educational equipment for life that was bestowed upon his more fortunate hearing companions. For this reason he labored to have the little private school in Milwaukee become a part of the Milwaukee school system, and, later, introduced legislative measures to have similar public day schools, with special State aid, located wherever necessary in the State. There was much opposition at first to this *unheard-of measure,* and it was only after several attempts to gain this desired legislation that success came. Mr. Spencer was never disheartened by defeat in any line—he simply redoubled his efforts *the next time* and *won!*

He enlisted the assistance of Dr. Alexander Graham Bell at a session of the legislature in 1885, at Madison, Wis. Dr. Bell's eloquent address and convincing arguments brought the desired victory, and the establishment of Wisconsin's public schools for the deaf was assured.

Later Mr. Spencer was the author of other legislative measures to increase the efficiency of these schools, including the one which provided for a State inspector of schools for the deaf. This has proven

Reproduction of a photograph of a group of friends of the deaf, taken in 1903, at the dedication of the new Day School for the Deaf in Milwaukee. From left to right: Col. Robert C. Spencer, Miss Mary McCowen, Miss Mary R. Campbell, Miss Annie E. Schaffer (Mrs. J. M. Critton), Mr. C. P. Cary, Dr. Alexander Graham Bell, Mr. E. W. Walker.

an excellent law, as the inspector's frequent visitations and close supervision keeps the deaf schools closely affiliated with all the public-school forces of the State, tending to make them a unit of harmonious work. Mr. Spencer leaves an influence for good that will never be lost; his broad interpretation of man's duty to man, as he lived it, rears for him a monument that can never perish.

Miss Sarah Fuller says of him: "Mr. Spencer seemed to me to be sent to do the special work that he accomplished so grandly, just at the right time, and then lived to see the happy results in large measure; and now is not, 'for the Lord took him.'"

He is honored for the monumental work he established in behalf of deaf children. Many will "rise up and call him blessed." Yes, we shall all miss our great-hearted friend — philanthropist, philosopher, statesman — loyal to the cause he espoused. Though the ripe years came to him, they touched him gently; their frost could not dim the faith and love he bore in his heart for his fellow-man. Of him it may well be said that he believed and lived the following:

"Age is opportunity no less
Than youth itself, though in another dress,
And as the evening twilight fades away
The sky is filled with stars, invisible by day."

A SUCCESSFUL LIP-READER

KATHARINE MURRAY SCHWARTZ was born at Oswego, Kansas. She attended the public schools of Omaha, Nebraska, and Mankato, Minnesota, until the second year of high school, when a severe cold rendered further attendance unprofitable. She then spent two years at Gallaudet College, acting as exchange editor for one year, and two years at the Wright Oral School for the Deaf, New York City, where she served as one of the editors of the school paper. From here she entered the University of Minnesota, graduating, with the help of lip-reading, in 3½ years with the degree of B. A. While at college she specialized in biology, philosophy, and sociology. She also received a teacher's certificate in home economics and took extra work in physical training.

Miss Schwartz is an active member of the San Diego branch of the National Association of Collegiate Alumnæ. Her home is at La Jolla Park, a suburb of San Diego, California, and she is at present engaged, under the supervision of the University of Minnesota, in collecting herbarium specimens of local flora for colleges and universities, both here and abroad. These sets are planned to differ from all others, so far as known, in that they will show variation under different habitat factors—that is, the specimens will show what effect light, shade, moisture, drought, altitude, etc., will have on each form.

MISS KATHARINE M. SCHWARTZ

J. M. Critton), Mr. C. P. Cary, Dr. Alexander Graham Bell, Mr. E. W. Walker.

A DEAF STUDENT OF CHEMISTRY

GEORGE DUDLEY VAN EPPS was born in Atlanta, Ga., in 1892. His father was Judge Howard Van Epps, a leading lawyer of the South and author of the Georgia Digest and other law books.

Mr. Van Epps was made deaf by scarlet fever when one year of age. From the age of six till he was eleven he was taught by private tutors at home. He then attended the Marist College in Atlanta for three years. In October, 1906, when fourteen years of age, he entered the Wright Oral School for the Deaf in New York City. Here he was prepared for the Georgia School of Technology, which he entered in 1909. He graduated with honor in 1913, receiving the degree of Bachelor of Science. He then decided to specialize in chemistry, and in the autumn of 1913 entered Johns Hopkins University as candidate for the degree of Doctor of Philosophy in Chemistry. He has completed his thesis, entitled "Preparation of Nitriles," and will become Doctor Van Epps in June, 1916. He had the honor to be twice appointed a "Hopkins Scholar" for the years 1914-'15 and 1915-'16.

GEORGE DUDLEY VAN EPPS

SPEECH CONFLICT—Natural Consequence in Cosmopolitan Cities—as Etiologic Factor in Stuttering, by M. K. Scripture and O. Glogau, is the title of a contribution to the *Journal of Nervous and Mental Disease* that the *Journal of the American Medical Association* abstracts as follows: In order to throw some light on the etiology of stuttering as met with in the cosmopolitan city of New York, Scripture and Glogau went over the histories of 200 cases of stuttering. The analysis of their statistics makes them conclude that speech conflict is an etiologic factor in stuttering. Among 171 male patients there were 33 whose stuttering was apparently brought about by speech conflict exclusively, while in 4 cases negligent lisping in their own language had previously existed. Among the 29 female patients there was only one to whom this cause could be attributed. The most striking feature concerning these stutterers from speech conflict is the fact that their stuttering was acquired at the ages of 5 to 7 years. Only in one instance was this later; the age was 9 years, and this was explained by the fact that the patient came from Russia at the age of 7 and was therefore only confronted with the problem of speech conflict at a later age than other children. Sixteen children started stuttering at the age of 6, 17 at the age of 5, and 4 at the age of 7. It is interesting to see that the onset of stuttering, either psychic or organic, may be from the ages of 1 to 15, while the stuttering from speech conflict occurs only at the ages of 5 to 7. In 38 cases the etiologic factor proved to be a conflict between the mother tongue at home and English to be learned in school. This speech conflict as an etiologic factor in stuttering is almost exclusively met with in the Jewish child, and particularly in the male sex.

"THE WORK OF MISS SUE POWER AND HER ASSISTANTS."—In the New Orleans *Times-Picayune,* Flo Field has a handsomely illustrated article telling of the "wonderful progress made in teaching deaf children and children with defective speech." Miss Field writes:

"Some five years ago there arrived in New

Orleans a young woman whose natural gift for training the young idea to shoot, and shoot straight, was augmented by finished courses at the big institutions which equip one with the science of teaching the deaf. She was Miss Sue Power. From the State institution of Arkansas, and then Louisiana, Miss Power turned to New Orleans by curious chance. Several mothers who realized that their children were afflicted, but not freaks, who wanted them educated, but did not wish to send them away from home, wrote Miss Power and asked if she would come here and take up the work. To cut a long story short, she did come; and besides the children whose parents wished them to be in school, she found children beyond the school age—girls and boys who had not even enough confidence in themselves to get into a street-car, children who had never attended any schools in their lives, and a few who were getting a little training at home in number work and writing. Yet none of them were receiving even an elementary normal development. So she went before the school board and quietly put the case, and to the everlasting credit of that able body, with the cooperation of the city council, the class was introduced into the vacation school at Franklin in 1911, starting with 20 children. Two years later those same girls and boys were going back and forth to school alone, were reading and speaking in primary work, and in sewing, cooking, and manual training classes were taking their places with hearing children."

THE SCHOOL OF LIP-READING *

The object of the lip-reading school is to teach those who have impaired hearing to make use of the sense of sight in such a way as to become less and less aware of deafness. The nice cultivation of the power of observation for the purpose of understanding what is said is just as possible as is the cultivation of the sense of touch for the blind. The eye, under control of the brain and in connection with the brain, is thus enabled to perform in a sense and to a great extent the function of hearing. There is no *perfect* substitute for hearing; but the eye may be so efficient in its service for the brain as to bring to the deaf person the power to understand and follow and take part in conversation, and this is to be accomplished even though the eye fails to see all the words that might be heard if hearing were normal.

The degree to which the art is to be acquired and the length of time necessary to acquire it vary with the individual and cannot be indicated with mathematical accuracy. Very rarely does one fail to find *some* help from the first, and in practically all cases power comes after perseverance. In practically all cases the power is steadily increased, even though progress may not in all cases be rapid. The function of the school of lip-reading is to give the deaf person, whether his deafness be great or little, the knowledge, the practise, the training, the kind of experience that will enable him to develop and increase the power of understanding speech, either without any aid from hearing or with imperfect hearing, as the case may be. The amount of help to be gained through the school is somewhat dependent on the length of time the learner can stay in the school, and greater success is open to some than to others. But practically all may look forward to the time when the fact of definite gain is recognized, and the learner knows he has only to continue the intelligent watching of the mouth of the speaker at all times to attain a greater and greater efficiency. To those who are good lip-readers the art is more valuable than the person of normal hearing can perhaps realize. It seems as if a new sense has been added, which almost compensates for the loss of hearing. The person who begins the study should, if possible, plan to give *at least* nine months to the school in regular, systematic attendance. If you are one of the talented—that is, if you have a talent for this particular art—you will reach your final goal the sooner and the more pleasantly for this session of work. If you seem to be one of those who must go slowly along the way, you may find the work in one session of the school of inestimable value. But if you cannot give nine months, you will be repaid in starting along the right road for six months, for three months, for six weeks even.

Though lip-reading or speech-reading is successfully taught to those who have to learn at the same time to speak, it is obvious that there is also distinct need for this art for those whose power of speech is entirely normal. Both the slightly deaf person and the wholly deaf person who have normal power of speech and command of language need a kind of teaching different from that adapted to the person who is learning to speak.

INCREASINGLY DIFFICULT

The difficulty of obtaining good teachers in schools for the deaf appears to be daily increasing. The demand is for college or normal school graduates with thorough training in oral methods. This is the ideal, but it is only in rare instances that we are able to attain it. The college graduate and the normal-school graduate find it very easy to get more remunerative work without taking the additional year's training that would fit them to teach speech and lip-reading. When a school does succeed in getting such teachers, it is only to lose them right away to a day school where

* From a booklet, the "Denver School of Lip-Reading," issued by Miss Bessie Lewis Whitaker, A. M., 513 Denham Building, Denver, Colo.

the salaries are uniformly higher, or to some school for hearing children that comes along and offers superior inducements. A neighboring school lost 18 of its teachers last summer and indications point to still farther inroads upon its staff in the near future. If the tide is to be stemmed, some action must be taken at once, and it looks as if about the only action that will do it will be a radical increase in the salaries now paid. — Editorial in *The Silent Worker*, School for the Deaf, Trenton, N. J., for March.

LETTERS TO THE EDITOR

71 Grenville St., Toronto, Canada,
February 19, 1916.

My Dear Mr. De Land:

I was very glad of the article on the Müller-Walle method, by Miss Bruhn, in the February number of The Volta Review. Miss Andrews' articles are always interesting, and I thought her story of the Little Boy and His Fairy Godfather in the November Review very good. I hope she will write more frequently now. The Psychological Tests for Lip-Reading, by Dr. H. D. Kitson; the accounts of Evening Classes, and Miss Case's description of Mrs. Trask's work at the San Francisco Exposition have also been of interest and help to us; and these are only a few of the good things you have set before us recently.

My best wishes to you, as always. As my experience grows, the more I know how to value the work of the Volta Bureau.

Very truly yours,

Grace K. Wadleigh.

School for the Deaf,
Milwaukee, *February* 15, 1916.

My Dear Mr. De Land:

Mr. Spencer was so vitally interested in the education of the deaf that the teachers in Milwaukee feel they would like to pay tribute to his philanthropic and generous character. Thus they request you to find space for the inclosed memorial in The Volta Review.

Thanking you, I remain,

Very truly yours,

Frances Wettstein.

In Memoriam.—Robert C. Spencer, president of the Phonological Institute, died at his home in Milwaukee, Wisconsin, January 10, at the ripe old age of 86. He is gone and we deeply deplore the loss of our friend and benefactor. However, we rejoice in the completeness of his life and work, that leaves behind many precious memories.

Those of us who came in touch with him are glad that he lived. Our ideals are higher—our lives broader and better for having known him. To know him was to admire and prize those qualities which he so strongly possessed—honesty, integrity, the courage of his convictions, and the perseverance which, in spite of seemingly insurmountable difficulties, led to the accomplishment of his purposes.

We especially value his work in behalf of the deaf. As a disinterested philanthropist, he was tireless in his efforts to promote the oral education of the deaf, and it was through his active and loyal support in legislation that the schools for the deaf in Wisconsin have been able to reach their present high standard.

It is a source of satisfaction to know that he lived to see the results of his unselfish labors. The parents of the deaf owe him a debt of gratitude for making it possible to leave their home ties unsevered; the children, for speech and language, that sets thought astir and keeps them in the intellectual company of man; the teachers, for his example of honesty, self-sacrifice, and generosity.

His whole life seems to exemplify Byron's words:

"What creed be taught or land be trod,
Man's conscience is the oracle of God."

Milwaukee Teachers for the Deaf.

Editorial Note. — Shortly after receiving Miss Wettstein's note came the news of the death of Mrs. Spencer, who joined her husband in about 30 days. So interested were husband and wife in the things that are worth while that the passing years only knit closer the bonds of a love that understood, and together they grew young.

Illinois School for the Deaf,
Jacksonville, *March* 1, 1916.

Editor Volta Review:

Will you kindly insert the following item in the forthcoming number of The Volta Review?

The scale of teachers' salaries in the Illinois School for the Deaf has been readjusted with a minimum of $100 per month and a maximum of $133.33 per month for men and women alike—the same amount for both—with an increase of $5 per month effective at the end of each year of continuous service.

Your courtesy will be appreciated.

Yours very truly,

C. P. Gillett,
Superintendent.

Editorial Note.—The editor welcomes communications from the heads of schools relative to the salaries of teachers, the need of teachers, or on any subject of interest to our readers.

THE "INQUISITIVE HABIT"*

BY W. CAREY ROE, B.A.

THE inquisitive habit in normal children is a common one; there seems to be a healthy desire "to know" more about a thing; to discover the "why" and the "wherefore." At the root of this habit lies the instinct of curiosity. Every one is curious, especially young children, and the object of teachers should be to employ this instinctively formed habit on the right lines. The mere satisfaction of a moment is not sufficient; this desire "to know" should be so developed and trained that it will arouse in the child a determination which he translates into effort in order to get "to know."

We are all aware, mathematicians especially, of the use which can be made of the pugnacious spirit, which will not allow one to give up wrestling with a sum until it is conquered. The greater the difficulty encountered often arouses a greater activity in order to overcome it. So with the spirit of curiosity—it should lead to effort, and only in so far as it does so can we be said to be making full use of our opportunities in the education of children. If a child wants to know more on any subject, he shouldn't be satisfied until he has employed every means to discover its origin, how it is made, and all about it as far as he can.

The normal child is provided with a ready means of satisfying its curiosity and developing the inquisitive habit; speech and language develop on natural lines, and the desire "to know" more can be vented on the parent or relative in the eternal "why," "how," "what," "when," etc.; in fact, the difficulty is not so much the absence of this inquisitive spirit as the inability of the elder to provide a sufficiency of answers which shall be of real educational value.

Too often the child is discouraged from asking so many questions or when trouble is taken, the answer is too technical and tends to make the child lose interest. The education of the parent does not unfortunately form part of the modern educational system; but there are numbers of cases where the intelligent interest the parents have taken in the early educational development of their children has had excellent results.

Now, it would be absurd to suggest that deafness in itself prevents the deaf child from being curious or inquisitive; but there can be no doubt, I think, that the pupil's inability to satisfy his natural longings "to know," due to the non-development of speech in a great many cases, brings about a deadening of the curiosity instinct and a retardation in the development of the inquisitive habit. Especially must this be so where the parents fail, and only too many do so, to get into touch with the child, and to satisfy the child's longings through a non-realization of what must be the workings of his mind. There are exceptions, and the history of these will nearly always show a more rapid scholastic development and a better result. In most cases the instinct of curiosity on entering school is dormant to a greater or lesser degree according to the home circumstances of the child.

One of the earliest aims should be, therefore, to see that the instinct of curiosity is stimulated and properly developed. The mere interest the teacher displays in the child is often sufficient to make the child come to her for information; he finds in the teacher, or should do so, some one who understands his needs and who will satisfy his curiosity. The interest and the difficulty of lessons should be great enough to make the child want to know more; to arouse the child into what Sully calls "a conative attitude of desiring and seeking knowledge"—an attitude which will need all the guidance and support that an experienced teacher can provide. The deaf child at first is limited to signs and facial gesture for his question forms. A child will often "look"

* From *The Teacher of the Deaf*, London, February, 1916.

a question—there is no need for words—and the teacher should try to realize and to answer these early questionings; or, again, the child will bring something about which he needs enlightenment—a practical question—which, as in the case of all of the early questions, has to be answered by demonstration.

The curiosity of a child will often lead it to examine things, especially pretty or interesting things; but this, which is only the satisfaction of a sense interest, is not sufficient from a teacher's point of view. What we want is for the child to express a desire "to know," as would a normal child; what is the name of a thing; what is it for; whose is it, and the hundred and one other questions which a normal child would ask. Unconsciously the curiosity instinct of a normal child leads to his acquirement of language as well as information, and this is one of the uses to which we can and should turn the curiosity of the deaf child. If we can get the child anxious to know what are the words, spoken or written, which designate any object, action, quality, etc., then we are at any rate on the way to a successful education of the child. The best educated of the deaf are those who have in youth felt the "thirst for information" which finds outlet in question form, whether the question be addressed to persons or to books, for the latter often answer questions. In the picking-up of this information, in the use of questions, the language has been extended and the power to use it improved.

The process of expansion of a deaf child on entering school and his new environment is interesting to watch but difficult to describe. But, varying with the mentality of the child, it is not long before a sign of some sort is picked up. This sign is generally a simple one; but it briefly means "what" or "I want to know." Personally, I see no reason why the use of this sign by the younger children should be prevented, at any rate until the child can use the word "what" without too much articulatory effort. This word "what" when learned will then bear, as it does with normal children, a variety of meanings according to the circumstances in which it is used. Here, again, the teacher will be required to meet the child more than half way, and in so far as the child is satisfied that the teacher has grasped and answered his query, so will he come the more readily and the more frequently on future occasions. The inquisitive habit should rapidly develop, and all through school it should be only bounded by the speech and language limitations of the child.

There are two ways of looking at the use of "questions;" these two ways are closely related, but they demand separate consideration, and psychologically they seem to involve two different methods of thought. They are:

(1) Questions put *to* the child, which involved on the part of the pupil speech-reading or reading of the question, understanding of the meaning, thought as to the answer, then the putting into speech or writing of the answer.

(2) Questions put *by* the child, which involved a desire "to know," thought as to the right language form, putting into speech or writing of the question; speech-reading or reading of the answer, an understanding of the answer.

In both of the above forms the question and answer are closely related; no question, save a rhetorical one, is complete in itself—the mental processes behind a question demand an answer; conversely, an answer in itself is not complete, save when taken in association with a question. This may be a truism, but it is often forgotten, especially by those who advocate the giving of a full answer in reply to a question.

(1) Questions put *to* the child. It is obvious, if the child is to use questions, that we, especially as teachers, must use them and use them plentifully. In speech we should use the current colloquial forms. The child will get just as accustomed to the lip-movements involved in the colloquial forms as he will to those involved in the more formal and stilted style of language. It is important to realize that in speech-reading the association of a certain series of lip-move-

ments with the meaning behind a question form is just as easy, whether we paraphrase the language or whether we do not. For instance, the series of lip-movements involved in "How long have you been at school?" is no more involved than in "How many years have you been at school?" Yet, on the ground of a supposed simplicity in language some teachers will paraphrase the former into the latter.

Now, in questions put *to* the child there is, generally speaking, some "clue" in the circumstances or in the attitude of the questioner which indicates that a question is being asked. The realization of this fact and the mental attitude the child adopts in response are both important. The cultivation of these points is the province of the teacher. The best of speech-readers must do a certain amount of intelligent guessing, an anticipation of the question itself frequently, or an attempt to realize what the person is likely to ask under the circumstances. But, naturally, for some time the more mechanical speech-reading of questions will have to be performed by the deaf child. Even so, little children make use of guesswork in their own limited way, and, unless it is a result of laziness or sheer inability, this should be encouraged along the right lines.

Frequent practise in speech-reading colloquial question forms is necessary. It is the thought, the meaning of the question, that we want the child to grasp; that is one reason why the repetition of the question by the child is so senseless, for it simply reveals that the child does not realize the object, the base element of questions. There is a time for speech repetition, even of question forms; but the habit of doing so in response to a real question is an aggravating one and one that should be strongly discouraged.

Assuming the child has speech-read the question, has grasped the meaning and realizes what is required, then a suitable reply has to be thought out and given by the child.

One of the earliest requirements of a deaf child will be words to express assent and dissent; there is no reason why the colloquial forms "no" and "yes" should not be demanded. The "nod and shake" method should not be allowed to suffice, for always it is a method easily acquired and only with difficulty eradicated. An attempt at "yes" and "no" at least evidences the speech habit and the improvement in speech will come later. Another necessary reply form is, "I don't know;" the use of the headshake or "no" for the answer is not sufficient. This is a colloquial reply and a necessary one.

With regard to other answers, what reply shall we expect? In colloquial work we should expect and we should teach the colloquial form and the child should be made to use it. Whatever the merits or demerits of making the child use the full answer in written work, there can be no two opinions as to the use of the simple colloquial form in speech. For example:

Question. What have you got in your pocket?

Answer. A piece of chocolate.

Question. Where's Tom?

Answer. In the day room.

Question. What's the color of your new dress?

Answer. Blue and white.

The use of the heading system can be seen here; the answers are what will be respectively in the What? Where? and What color? columns. The replies are colloquial and are correct. They are what a normal person would say. In answer to a question, an oral one certainly, we do not as a rule require a statement; we want information. An examination of the three examples given will show that in none of them is the question or the answer complete in itself, but they form a complete whole when taken together. This is the essence of question and answer, that neither in itself is complete.

Now, though we must teach the shortened form, it must be the correct one; we must not be satisfied with a distorted abbreviated form on the grounds that the child has understood the question, and though the reply is not good, it is

sufficient to give the required information; habit will make the child take advantage of a slovenliness in language which is difficult to eradicate. For example:

Question. What did you do yesterday?
Answer. Football.

The answer conveys to the teacher an obvious fact, but the language is deficient, and if real progress is to be made, the child, when the time comes, should be made to use the correct form.

These answers should be exercised in speech and rhythm and in language lessons.

Now as to written work. It is advocated by some that the child ought to know and be able to use the full answer form. For example:

Question. Where do you live?
Answer. I live in London.

The answer is a full statement in itself, and it appears to me that its use tends to detract from the real object of questions. The longer answer is unnecessary and unnatural; the reply "in London" would be quite sufficient and would certainly be the natural reply to make.

The use of the short or the long form of reply would appear to depend on the point of view. If we require to exercise a language form, or if we require a statement or composition, then the long form may be used; but if we require information, only the short form. The objections to the use of the long form appear to me overwhelming. In the first place, I quite fail to see that it is necessary that the child should know the long form in association with a question, because actually it isn't a reply to a question at all, but a statement of fact. If we wish to teach statements, let us teach them as such; if we wish to teach answers to questions, let us teach the correct ones.

The use of the long form tends again to mere reproduction, no thought being given to the meaning behind the question, with the consequence that later on, when question and answer differ in language form, the child who has got into the habit of looking in the question for the language of the answer form is all at sea. Where such emphasis is laid on the correct language form, the child is apt to imagine that the mere use of the shell, as it were, is sufficient. For example, in answer to the question, "What is the capital of France?" A child who writes, "The capital of France is ——," and then pauses, thinks he is half way to the answer. It is a fault we are all prone to; the mere putting of words onto paper deceives one into the belief that the answer is half finished. If we accept the language form, we get it in the above answer; but, actually speaking, no answer at all has been given to the question.

It is the meaning of the question that the child must be encouraged to look for, then to think over the answer, and in suitable language, not looking for it in the question, give his answer. Often simple words are not enough; a fuller answer is required. But as the language of the child develops, so will the ability to give fuller and better answers.

(2) Questions *by* the child. The use of questions by the child should follow, naturally, on the use of them by the teacher.

From a speech and language point of view, the child is handicapped by his inability to use the particular form his query requires. A child may wish to know what is inside a box, but it is obvious that he can't say, "What's inside?" nor can he say, "How does it work?" but he does want to know these facts, and we should give him the question forms and encourage him to attempt their use as the necessity arises. It should be the object of the teacher to prepare lessons in which exercise in question forms appears as real as possible to the child. The child should feel that the question is not altogether without purpose; that information of some kind of which he is at present ignorant is to be gained by asking. In this way the real object of questions will be impressed on the child, and there will be more likelihood of these questions being asked beyond the confines of the school.

Practise in speech and rhythm lessons of the common question forms is very

necessary, as it is essential that the child should not find the asking of the questions too difficult if he is to use them in every-day life. Can we but get our pupils to badger their friends and parents with questions as they do their teachers, we shall find that instead of proving a stagnation period the holidays will prove a blessing, and the child will return to school with a store of information and a livelier interest in the possibilities of his school work.

With the written forms, also, a good deal of practise in question work is necessary; but if the child is to ask questions it is our duty to indicate to him, as in the case of oral work, something about which to ask them.

The procedure will be then as follows. Questions should be used by the teacher and answers taught, as:

Do you like pears? Yes.

What is your name? Harry.

Later on the child should use the questions and the teacher reply; and, following on that, statements dealing with the information gained can be taken:

I like pears.

You like pears.

My name is Harry.

Your name is Miss Smith.

In this way the association of question and answer will be kept separate from a statement of fact.

The question instinct is in the child, and it is for us as teachers to develop it and to clothe the tendency to inquire with the recognized and usual language forms. The continuous exercise and use of these, first by us and then by the child, should be constant until the time arises when a query can be asked or expressed without conscious effort as to the speech or language required, until the thought itself arises in the mind, as it were, to find the language ready for its expression. On these lines an approximation to that self-development through which the normal child passes before coming to school is possible, and the way is opened to the child to obtain the benefit of the experiences of those around him, which his physical disability prevents him from acquiring in early infancy in the usual way.

SUMMER TRAINING COURSE

The Central Institute for the Deaf, St. Louis, Mo., offers a summer normal training course to be held June 14 to July 14, 1916. A comprehensive normal course has been arranged for the benefit of teachers with some experience in work with the deaf. The fee for tuition is $50, including certificate. Board and lodging can be obtained for $25 per month, two occupying the same room. Any students desiring additional opportunity for observation in the Central Institute will be welcome at any time after June 6. Address inquiries and applications to Ethel M. Hilliard, principal.

THE EARLY USE OF SPEECH AND SPEECH-READING

"Too much stress cannot be laid upon the early training of the little deaf child in the *use* of speech-reading."—*Jessie Duff in the January Volta Review.*

It would seem that this ought to be apparent to the most casual observer, yet it is something which is in no danger of being reiterated too frequently. The child may be taught to arrange the organs of speech in proper position for uttering the word "fall" perfectly, but he has not really learned that word until he associates it with the act. If he comes to his teacher crying as the result of a tumble and says "fall," he has learned the word; and he has not learned it until he does thus, or in similar fashion, *make use* of it. No attention should be paid to a child's gestures and pointings if he is able to express *in English* what he wants to say, and this applies to both those pupils learning speech and to those in the manual department. This is a plain, prosaic truth, that needs but to be uttered to be admitted, and yet it is disregarded daily in the majority, if not in all, of the "combined" schools of the land.

The whole article from which we quote the extract at the head of this editorial is well worth reading—and *heeding.—The California News*, February 15, 1916.

For Use in the Home.—For correcting the defective speech of children, no other book has proven so helpful to mothers as *Faults of Speech*. It should never be forgotten that "a very little attention of the parents would secure their children against articulative blemishes, which otherwise disfigure them for life and which are often the first causes of the most painful impediments."

My List of Homophenous Words.—Miss Emma Snow's excellent work appeared in *The Association Review* for February, April, and June, 1903. Copies of these three numbers will be sent to any address on receipt of 50 cents by the Volta Bureau.

THE MELVILLE BELL SYMBOLS: LINE-WRITING FORM

In the consonant characters lines sloping from right to left indicate positions of the lips; lines sloping from left to right denote positions formed by the back of the tongue; vertical lines indicate point-tongue positions; and when they have a small cross-bar at the top, this indicates that the front of the tongue is employed.

Thin lines represent non-vocal consonants, and thick lines show that the voice is used.

A straight line indicates "shut," a simple curved line "center aperture," an indented line "divided aperture," and a sinuous line a "mixed" position.

The vowels in line-writing are represented in a subordinate manner, so that in this respect line-writing affords a remarkable contrast to the ordinary printed forms of the symbols, in which the vowels are made specially prominent by standing out beyond the line of the consonants, above or below.

In line-writing the consonants (which give intelligibility to speech) stand out prominently to the eye; whereas the vowels, which are of comparatively slight importance to intelligibility, are represented in a subordinate manner, "tick" size.

Vowels formed by the front of the tongue are represented by a tick-sized straight line sloping from right to left. In back-tongue vowels the lines slope from left to right, and in "mixed" or "back-and-front" vowels the lines are vertical. A little hook on the tick-sized line denotes "rounding of the lips." The "primary" vowels are represented by thick lines and the "wide" vowels by thin. "High" vowels are written at the top of the consonant line, "low" vowels at the bottom, and "mid" vowels half-way between.

The line-writing symbols for the English elements of speech are given below with the sounds they represent, expressed in Roman letters.

As the elementary characters are simple lines, they form, when combined into a word, a sort of picture of which the consonants form the outline; and the word, as a whole, is easily recognized even without the necessity of splitting it up into its component elementary sounds.

Now, certain words look alike to the eye of the speech-reader. These are termed "homophenous" words, from a Greek word meaning "the same appearance."

A speech-reader, for example, cannot certainly distinguish the following words from one another by the eye alone:

pat	bat	mat
pad	bad	mad
pan	ban	man

These words constitute a homophenous group.

While it may be difficult, if not impossible, for a speech-reader to tell which word of this group is the one uttered by a speaker if it is given alone, he has no difficulty in identifying it by context when it is incorporated into a sentence.

Suppose the speaker should say, "I wiped my feet upon a —"; then, if the speech-reader knows that the missing word is one of the group given above, he has no difficulty in identifying it by context.

We couldn't very well wipe our feet upon a pat or a bat, or a bad or a mad, or even upon a pan, ban, or man; the only word that makes sense is "mat."

Try sentences incorporating other words from this same homophenous group:

He gave the dog a — on the back.
A boy will grow up into a —.
Fish fried in a —.
He is a very — boy.
I saw a — flying in the room.
I struck it with a —.
A pencil and —.
He was under a —.
His eyes glared, and I saw he was —.

As a general rule, one word in a homophenous group, and one alone, supplies the sense.

The process of identifying "homophenous" words (those having "the same appearance") is identically the same as that we employ in distinguishing between "homophonous" words (those having "the same sound").

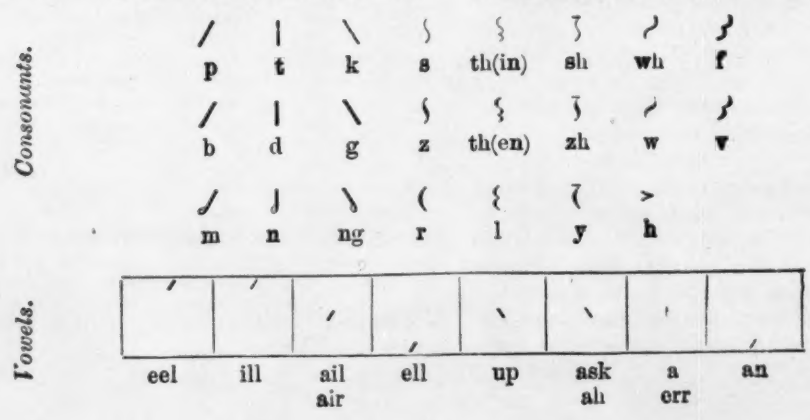
For example, take *"rain," "rein," "reign."* Pronounce one of these words by itself, and we do not know which one is meant; but give it in a sentence, and the context immediately clears up the sense.

One of the great difficulties in learning to read speech from the mouth is that the speech-reader, when he sees certain movements of the vocal organs, imagines a single word instead of a group of words from which selection is to be made by context. While the word imagined may be properly represented by the movements he perceives, it may not turn out to be the word actually employed, but one that is homophenous with it; he only finds out by the slow and painful process of failure to understand that other words present the same appearance. Here line-writing comes in as a valuable aid in acquiring a knowledge of homophenous words.

In line-writing homophenous words present the same word-picture to the eye. The outlines are the same, but differ in shading, thick and thin lines representing respectively vocal and non-vocal consonants.

Now, when we read line-writing which has been scribbled hastily with a pencil, it is a little difficult sometimes for us to decide whether a line was intended to be thick or thin; so that a certain ambiguity appears in pencil-writing. The form of the word is clear, but the shading is a little indefinite, and it is noteworthy that the ambiguities correspond in kind to the ambiguities of speech-reading. The vocal and non-vocal consonants are not clearly distinguished from one another, and context must be taken into consideration.

Reading from line-writing has a marked advantage over speech-reading in one respect: In line-writing the ambiguous words remain upon the page, where they may be studied at leisure, whereas the spoken word vanishes as soon as uttered. Unless the speech-reader can make selection at once from a homophenous group, the opportunity for study passes.

It might be actually of advantage to provide him with exercises in line-writing made purposely ambiguous. For example, let thin lines alone be used, and it would then be necessary for him to shade the characters properly in order to make sense. This would exercise his power of applying context.

The system of line-writing is recommended to the serious attention of the readers of THE VOLTA REVIEW as one of the most promising means of teaching speech-reading to the deaf.